

*CURRICULUM VITAE*  
**HAROLD MATHIJS VAN ES**

SECTION OF SOIL AND CROP SCIENCES  
SCHOOL OF INTEGRATIVE PLANT SCIENCE

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Cornell University

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Profile: <http://scs.cals.cornell.edu/people/harold-van-es>

Date of Birth: 22 November 1958

Citizenship: USA (formerly Netherlands)

Family Status: Married; three children

**EDUCATION:**

<u>Year</u>	<u>Degree</u>	<u>Institution</u>
1988	Ph.D.	North Carolina State University, Soil Physics, minor in Statistics
1984	M.S.	Iowa State University, Soil Management
1981	Kandidaats	University of Amsterdam, Physical Geography

**ACADEMIC RANKS:**

**International Professor:** 2006-present

**Professor:** 2002-present

**Associate Professor:** 1994-2001

**Assistant Professor:** 1988-1993

**ADMINISTRATIVE RESPONSIBILITIES:**

Chair, Department of Crop and Soil Sciences (2007-2011)

President, Soil Science Society of America (2015-17)

Director, Cornell Initiative on Computational Agriculture (2003-)

Director of Graduate Studies (Field of Soil and Crop Sciences (2001-2006)

**SABBATICAL AND STUDY LEAVES:**

<u>YEAR</u>	<u>LOCATION</u>	<u>SPECIALIZATION</u>
Jan-June 2014	South Africa, Europe	Computational agriculture
Jan-July 2002	Horticultural Research Institute of New Zealand	Research and policy studies in land and water management
Aug-Dec 1995	Lansing, NY	Course preparation and self study

**PROFESSIONAL OVERVIEW AND OBJECTIVES**

Harold van Es is a Professor of Soil and Water Management and former Chair of the Department of Crop and Soil Sciences at Cornell University, with research, teaching and extension responsibilities. Current interests are in precision nitrogen management, soil health, chemical fate in soils, tillage and compaction, and space-time statistics. He also teaches an undergraduate

course in Soil and Crop Management for Sustainability (4 cr.), and a graduate course in Space-Time Statistics (2 cr.). Research and extension programs are conducted in New York and other US states, as well as Central/Eastern Europe, Latin America, Africa, Asia and Oceania. He is a Fellow of the Soil Science Society of America and the American Society of Agronomy, and has served on US EPA scientific advisory panels.

### **MAJOR CAREER ACCOMPLISHMENTS**

- Served as President of the Soil Science Society of America (6600 members)
- Managed an academic department with \$3.2M core budget and \$12M grants during financial cutbacks and reorganization.
- Initiated and directed the Cornell Computational Agriculture Initiative and NY Precision Agriculture initiatives.
- Led the development of new technology for adaptive maize nitrogen management using computer models and high-resolution weather data (Adapt-N). This technology was licensed and commercialized to Agronomic Technology Corporation, which was first to graduate from the Cornell University McGovern Center for Venture Development. The company is a commercially viable, and the technology is used in several sustainability initiatives.
- Co-led the Cornell Soil Health Initiative and co-developed the Cornell Soil Health Test.
- Co-authored a globally influential book on sustainable soil management that sold over 40,000 copies.
- Developed methodology of frost tillage/injection that is increasingly adopted by temperate zone farmers. Developed the theory and application of spatially-balanced experimental designs for field experiments, which has been incorporated into commercial statistics software. Developed infiltration and aggregate stability assessment equipment and methodology.
- Educated thousands of students and professionals on sustainable soil and water management. Several former graduate students hold prominent positions at universities, companies, and agencies around the world.
- Provided consulting services related to the development of a state agricultural master plan (Nigeria), wind farm development, landslide remediation, erosion prevention, and cranberry quality assessment.
- Authored over 120 refereed publications, four books, and 57 extension publications. Supervised 9 Ph.D. and 11 M.S. students, and 12 Ph.D. and 13 M.S. as minor advisor, as well as 16 postdoc fellows and visiting scientists. Obtained approximately \$4.5M in grant funding for research and outreach projects.
- Google Scholar h-index: 32

### **HONORS AND AWARDS:**

Team Research and Extension Award. College of Agric. and Life Sciences, Cornell Univ. (2008).  
Fellow, American Society of Agronomy. 2006  
Fellow, Soil Science Society of America. 2004

Outstanding New Extension Publication for *Building Soils for Better Crops*. The New York State Association of County Agricultural Agents (2000)  
Statewide Program of Excellence in Sustainable Agriculture. Cornell Cooperative Extension (1996)  
Excellence in the Development of Agronomic Education Material. American Soc. of Agron (1992).  
H.H. Bennett Conservation Award. Soil & Water Conserv. Society, North Carolina Chapter (1987).  
Associate Member. Alpha Zeta (2009-)

## **RESEARCH RESPONSIBILITIES**

### **Postdoctoral Associates**

Jean Sogbedji (1999-2001; 2005)  
Tawainga Katsvairo (2001-2003)  
Dean Hively (2004)  
Bianca Moebius-Clune (2009-2011)  
Dan Moebius-Clune (2011-2015)  
Shai Sela (2015-)  
Rebecca Marjerison (2015-)

### **Other Research Professionals Supervised or Hosted**

Richard Omari (Ghana)  
K.V. Ramana Rao (Borlaug Fellow, India)  
Omolulu Idowu (Research Associate)  
Peter Woodbury (Research Associate)  
David Bonfil (Visiting Scientist; ARO, Israel)  
Tal Svoray (Visiting Scientist; Ben Gurion Univ., Israel)  
Feng Sheng (Visiting Scientist, Sun Yat Sen Univ, China)  
Xiang-Feng Zheng (Visiting Scientist, China Northwest Agric. Univ.)  
Muhammed Iqbal (Visiting Scientist; Univ of Faisalabad, Pakistan)  
Yandong Xue (Visiting Scientist; China Agric. Univeristy)  
Yuanjun Zhu (Visiting Scientist; Chinese Academy of Sciences, Xian)  
Velibor Spalevic (Borlaug Fellow, Montenegro)  
Georgi Mitev (Borlaug fellow, Bulgaria)

## **TEACHING AND ADVISING RESPONSIBILITIES:**

### **Courses Taught:**

PLSCS 3210: Soil and Crop Management for Sustainability (4 credits, 2014-)  
CSS 6970: Seminar in Crop and Soil Sciences (1 credit, 2007-2011)  
CSS 3210: Soil and Crop Management for Sustainability (4 credits, 2009-2013)  
CSS 621 Applications of Space-Time Statistics (2 credits, 1994-)  
CSS 421 Soil and Water Management (4 credits, 1996-2006)

### **Internet Presence**

Adapt-N: <http://adapt-n.cals.cornell.edu/>

Soil health: <http://soilhealth.cals.cornell.edu/>

Computational agriculture: <http://www.cac.cornell.edu/clients/CompAg.aspx>

### **Policy Engagement/Leadership**

Served on US EPA Scientific Advisory Panels as part of FIFRA and FQPA implementations (1999-2001).

**GRADUATE FIELD MEMBERSHIPS:** Soil and Crop Sciences (Director of Graduate Studies 2001-2006), International Agriculture and Rural Development, Water Resources

### **GRADUATE MAJORS:**

#### **Current:**

Fatma Rekik	Soil and Crop Sciences	MS/PhD	2020
Phil Frost	Soil and Crop Sciences	Ph.D	2018
Leilah Krounbi	Soil and Crop Sciences	Ph.D	2017

#### **Completed:**

Horacio Buscaglia	Soil, Crop and Atm. Sci	MS	1991
James Capron	Soil, Crop and Atm. Sci	MS	1993
Charissa Yang	Soil, Crop and Atm. Sci	MS	1995
Christopher Ogden	Soil, Crop and Atm. Sci	Ph.D	1996
Udaya Karunatilake	Soil, Crop and Atm. Sci	Ph.D	1996
Henri Uzategui	Intern. Ag and Rural Dev.	MPS	1996
Kelvin Minniefield	Soil, Crop and Atm. Sci	MS	1997
Matthew Thornton	Intern. Ag and Rural Dev.	MPS	1998
Jean Sogbedji	Soil, Crop and Atm. Sci	MS and Ph.D	1999
Ben Zaitchik	Soil, Crop and Atm. Sci	MS	2001
Jason Kahabka	Soil, Crop and Atm. Sci	MS	2002
Antoni Magri	Soil, Crop and Atm. Sci	MS	2003
Luis Fregoso-Tirado	Soil, Crop and Atm. Sci	Ph.D	inc.
Zelia Menete	Soil and Crop Sciences	Ph.D	2005
Judith Ball	Soil and Crop Sciences	MS.	2007
Ivy Tan	Soil and Crop Sciences	Ph.D	2007
Ali Volkan Bilgili	Soil and Crop Sciences	Ph.D.	2009
Bianca Moebius-Clune	Soil and Crop Sciences	MS and Ph.D	2009
Parker Filer	Intern. Ag and Rural Dev	MPS	2011
James LaGioia	Soil and Crop Sciences	MPS	2011
Pratyush Singh	Intern. Ag and Rural Dev	MPS	2012
Christopher Graham	Soil and Crop Sciences	Ph.D	2012
Rintaro Kinoshita	Soil and Crop Sciences	MS and Ph.D	2015

**GRADUATE MINORS:****Current:**

Sonam Sherpa	Soil and Crop Sciences	MS and PhD	2016
Ali Al Farqani	Horticulture	PhD	2018

**Completed:**

Mark Raabe	Agric. Biol, Engin.	MPS	1989
David Henderson	Soil, Crop and Atm. Sci	MS	1991
Daniel Mataruka	Soil, Crop and Atm. Sci	PhD	1992
Daniel Long	Soil, Crop and Atm. Sci	PhD	1993
Chris Ogden	Soil, Crop and Atm. Sci	MS	1993
Susan Day	Floriculture and Orn. Hort.	MS	1995
Ron Kaplan	Floriculture and Orn. Hort.	PhD	incompl.
Angela Singleton	Soil, Crop and Atm. Sci	MS	1998
Patricia Gossett	Soil, Crop and Atm. Sci	MS	1999
Jason Grabosky	Floriculture and Orn. Hort.	MS and PhD	1999
Michael Cameron	Soil, Crop and Atm. Sci	MS	1999
Erin McDonnel	Food Science	Ph.D	1999
Tawainga Katsvairo	Soil, Crop and Atm. Sci	PhD	2000
Angela Rivenshield	Horticulture	MS	2001
Matthew Speck	Horticulture	MPS	2002
Masatoshi Kobayashi	Soil and Crop Sciences	MEM	2002
Jae Hong Han	Floriculture and Orn. Hort.	M.S. and Ph.D	2001
Maren Machizuki	Horticulture	MS	2005
Zachary Easton	Horticulture	MS	2006
Doug Soldat	Horticulture	Ph.D.	2006
Justin Rich	Horticulture	M.S.	2007
Rebecca Marjerison	Biol. Env. Engineering	MS	2009
Helen Markewich	Animal Science	Ph.D.	2009
James Myers	Horticulture	Ph.D	2010
Brent Markus	Horticulture	M.S./Ph.D.	2011
Herdis Schopka	Earth and Atmospheric Sci.	Ph.D.	2010
Clay Mitchell	Soil and Crop Sciences	M.S.	2011
Amanda Sims	Horticulture	MPS	2013
Anne Bybee-Finley	Soil and Crop Sciences	MS	2015
Assefa Zegeye	Biol. Env. Engin.	PhD	2016

**PROFESSIONAL SOCIETIES:**

Soil Science Society of America - President (2015-17) and Member of Board (2008-17)  
International Union of Soil Science  
American Society of Agronomy  
Soil and Water Conservation Society  
International Society for Precision Agriculture

**EDITORIAL BOARDS:**

Journal of Environmental Quality (1996-1999)

Editorial Committee, Methods of Soil Analysis, Part 1: Physical Properties, Soil Science Society of America (1997-2002)

Guest Editor, Geoderma (an international soil science journal - 1997)

Regular reviewer for the Journal of Environmental Quality, Soil Science Society of America Journal, Agronomy Journal, Precision Agriculture, Journal of Production Agriculture, Geoderma, Plant and Soil, Soil Science, Soil and Tillage Research, Nutrients in Agricultural Ecosystems, and others.

**COMMITTEE ASSIGNMENTS (notable only):****National:**

Member, Soil Science Society of America Board of Directors, including Chairships of Science Policy Committee and Budget and Finance Committee

Member and Report Coordinator, Scientific Review Board for the Implementation of the Food Quality Protection Act and the Federal Insecticide, Fungicide and Rodenticide Act, US Environmental Protection Agency (seven Scientific Advisory Panel meetings during period 1998-2001).

**State:**

Advisory Member, New York State Soil and Water Conservation Committee (1988-1996)

**University:**

Member, University Faculty Conflict of Interest Committee (2015-)

Member, University Faculty Committee on Tenure Appointments (FACTA; 2012-14)

Member, University Appeals Panel (1998-2003; 2006-2011)

Member, Institute for European Studies Advisory Committee (2006-)

**College:**

Member, Search Committee for College of Agriculture and Life Sciences Dean (2009-10)

Chair, CALS Program Committee on Eastern Europe and Eurasia (2006-)

Member (2003-06) CALS Committee on Research and Graduate Education

Chair (2002-2004) CALS Committee on Outreach Policy

Chair (1997-2001) and member (1995-2001), Cornell Environment and Natural Resources Outreach Council

Member, CALS Environmental and Natural Resources Planning Council (1995 to 2001)

Chair (1995 to 1996) and Member (1991-present), CALS Central and Eastern Europe Program Committee

Member, CALS Committee on the Future of Distance Education (1998-2000)

Coordinator, Program Characterization for Soil and Water Resources, CALS Program Characterization and Review Process (1996)

Member, six ad-hoc tenure and promotion review committees

## **RESEARCH GRANT REVIEW PANELS:**

US-Israel Binational Agricultural Research and Development Review Panel (9/03-1/04, and 9/04-1/05). Served as panel chair in both 2004 and 2005.

## **CONSULTING**

Schwartz, Mineo & Terrana, LLP. Uniondale, NY. Evaluation of erosion sources and solutions on a vegetable farm on Long Island, NY (2015)

American University, Beirut-Lebanon. Evaluation of agricultural sciences undergraduate program (2012)

State of Kwara, Nigeria. Development of an Agricultural Master Plan (2012)

Witten, Woolmington, Campbell, Boepple, Welford & Sawyer, P.C., Manchester, VT. (2006-2009). Research and advice on soil and water quality impacts of construction of wind turbines.

Ocean Spray Cranberries, Inc. (1995-1996). Developed protocols for sampling fresh cranberry deliveries and performed statistical analyses of fruit quality data.

## **FUNDING**

Secured approximately \$5M in funding for research and extension projects.

## **PERSONAL**

Co-founder, Partnership of Lansing and African Schools (2005-). A not-for-profit project that links the Lansing, NY schools with Mbaka Oromo Schools in rural Western Kenya. This project built 13 classrooms with furniture, a library, a school kitchen, a solar-powered electrical system, and a computer room for the Kenyan school.

Soccer coach (1995-2004). Lansing, NY Recreational Programs.

Radio DJ, KUSR, Ames, Iowa (1983-84). Hosted a three-hour musical radio show.

## **CONFERENCES/WORKSHOPS/IN-SERVICE PARTICIPATION**

56 workshops and in-service training events in the past 10 years, of which 30 organized.

## **PUBLICATIONS**

### **Books**

Magdoff, F.R., and **H.M. van Es**. 2009. Building Soils for Better Crops: Sustainable Soil Management. Handbook Series Book 10. Sustainable Agric. Research and Extension, College Park, MD. 294 pp. (over 52,000 printed copies sold; over 160,000 digital downloads (5/2016))

Magdoff, F.R., and **H.M. van Es**. 2000. Building Soils for Better Crops. Handbook Series Book 4. Sustainable Agric. Network, Beltsville, MD. 224 pp (over 15,000 printed copies sold).

**H.M. van Es**, and D. Huska. 2001. Environmental Management of the Rural Landscape in Central Europe. Slovak Univ. of Agric., Nitra 165 pp.

L. Ryszkowski, S. Balazy, A. Kedziora, **H.M. van Es**, and R.L. Schneider. 2005. Management and protection of water resources in rural areas. Research Centre for Agricultural and Forest Environment, Polish Academy of Sciences.

## **Refereed Articles**

*Note: in ISI databases, publications after 1996 are listed under the last name "van Es"; prior to 1996, they are listed under "vanEs"*

Currently in review:

1. Kinoshita, R, R.R. Schindelbeck, and **H.M van Es**. 201X. Quantitative soil profile-scale assessment of the sustainability of long-term maize residue and tillage management. *Soil&Tillage Res.* (in review).
2. Rintaro Kinoshita, R., and **H.M. van Es**. 201X. Assessing Within-Field Profitability for Agronomic Management Decisions in the Mid-Atlantic USA. *Agric.&Environm. Letters* (in review).
3. Fine, A.K., **H. M. van Es**, and R. R. Schindelbeck. 201X. Statistics, Scoring Functions and Regional Analysis of a Comprehensive Soil Health Database. *Soil Science Soc. Am. J.* (in review).

Published:

4. Marjerison, R.D. J. Melkonian, J.L. Hutson, H. M. van Es, S.Sela, L.D. Geohring, J. Vetsch. 2016. Drainage and nitrate leaching from artificially drained maize fields simulated by the Precision Nitrogen Management model. *J Environm. Qual.* (accepted).
5. Sela, S., **H.M. van Es**, B.N. Moebius-Clune, R. Marjerison, D. Moebius-Clune, R. Schindelbeck, K. Severson, E. Young. 2016. Dynamic model improves agronomic and environmental outcomes for corn N management over static approaches. *J. Environm. Qual.* (accepted).
6. Sherpa, S.R., D. W. Wolfe, and **H.M. van Es**. 2016 Sampling and data analysis optimization for estimating soil organic 1 carbon stocks in agroecosystems with complex land uses. *Soil Sci Soc. Am. J.* (accepted).
7. Sela, S., **H.M. van Es**, B.N. Moebius-Clune, S. R. Marjerison, J.J. Melkonian, D. Moebius-Clune, R. Schindelbeck, and S. Gomes. 2016. Adapt-N Outperforms Grower-Selected Nitrogen Rates in Northeast and Midwest USA Strip Trials. *Agonomy J.* doi: 10.2134/agronj2015.0606.
8. Svoray, T, I. Hassid, P. M. Atkinson, B.N. Moebius-Clune, and **H.M. van Es**. 2015. Mapping soil quality over large agriculturally-important areas. *Soil Sci Soc America J.* 79:1420-1434. doi:10.2136/sssaj2014.09.0371.
9. Kinoshita, R., O. Roupsard, T. Chevallier<sup>4</sup>, A. Albrecht, S. Taugourdeau, Z. Ahmed<sup>5</sup>, and H.M. van Es- 2015. Large topsoil organic carbon variability is controlled by Andisol properties and effectively assessed by VNIR spectroscopy in a coffee agroforestry system of Costa Rica. *Geoderma* 262:254-265. [doi:10.1016/j.geoderma.2015.08.026](https://doi.org/10.1016/j.geoderma.2015.08.026)
10. van Grinsven, H.J.M, Bouwman, L., Cassman, K.G., **van Es, H.M.**, McCrackin, M.L., and Beusen, A.H.W. 2015. Losses of ammonia and nitrate from agriculture and their effect on nitrogen recovery in the European Union and the United States between 1900 and 2050. *J. Environm. Quality.* 44: 356-367.



11. Iqbal, M., **H.M. van Es**, A. Ul-Hassan, R.R. Schindelbeck, and B.N. Moebius-Clune. 2014. Soil Health Indicators As Affected By Long-Term Application Of Farm Manure And Cropping Patterns Under Semi-Arid Climates. *Int J. Agriculture and Biology* 16: 242–250.
12. Sogbedji, J.M., J. Melkonian, K.A. Amouzou, K.S. Ezui, and **H.M. van Es**. 2013. Application of a Nitrogen Management Model under Maize and Mucunu Cover Cropping in West Africa. *J. Renewable Agric.* 1:152-159 (DOI: 10.12966/jra 10.24.2013).
13. Graham, C.J., **H.M. van Es**, and J.J. Melkonian. 2013. Nitrous Oxide Emissions Are Greater in Silt-Loam Soils with a Legacy of Manure Application than Without. *Biology and Fertility of Soils* (DOI 10.1007/s00374-013-0809-3).
14. B.N. Moebius-Clune, **H.M. van Es**, and J.J. Melkonian. 2013. Adapt-N Uses Models and Weather Data to Improve Nitrogen Management for Corn. *Better Crops with Plant Food*. 2013 (4) 7-9.
15. Xue, Yandong, **Harold M. van Es**, Robert R. Schindelbeck, Bianca N. Moebius-Clune, Peiling Yang. 2013. Effects of carbon profile, N placement and temperature on N<sub>2</sub>O emissions in clay loam and loamy sand soils. *Soil Use & Manag.* 29:240-249.
16. Moebius-Clune, D.J., B.N. Moebius-Clune, **H.M. van Es**, and T.E. Pawlowska. 2013. Arbuscular mycorrhizal fungi associated with a single agronomic plant host across the landscape: Community differentiation along a soil textural gradient. *Soil Biol & Biochem.* 64:191-199.
17. Kinoshita, R., **H.M. van Es**, B.N. Moebius-Clune, W.D. Hively, and A.V. Bilgili. 2012. Strategies for Soil Quality Assessment Using VNIR Hyperspectral Spectroscopy in a Western Kenya Chronosequence. *Soil Sci. Soc. Am. Journal.* 76: 1776-1788. doi:10.2136/sssaj2011.0307.
18. Iqbal, M., **H.M. van Es**, R.R. Schindelbeck, and B.N. Moebius-Clune. 2012. Soil Health indicators measure multiple benefits of farmyard manure application. *Acta Agriculturae Scandinavica, Section B - Plant Soil Science* (accepted).
19. Markewich, H.A., A.N. Pell, D.M. Mbugua, D.J.R. Cherney, **H.M. van Es**, J. Lehmann. 2012. The effects of some external management factors on the quality of cattle manure as a soil amendment on small farms in Kenya. *International J. Agronomy*. ID 437354, 11 pages. doi:10.1155/2012/437354).
20. Richter, D.N., S. Andrews, ....**H.M. van Es**, et al. 2011. Human-Soil Relations are Changing Rapidly: Proposals from SSSA's Working Group on Soil Change. *Soil; Science Society of America Journal* 75:2079-2084.
21. Meyers, J. G.L. Sacks, **H.M. van Es**, and J. vandenHeuvel. 2011. Maximizing Operational Efficiency via Dynamic Spatially-Explicit Optimization. *Australian Journal of Grape and Wine Research*.17:306-315. doi: 10.1111/j.1755-0238.2011.00152.x
22. Iqbal, M., Ul-Hassan, A, and **van Es, H.M.** 2011. Influence of residue management and tillage systems on carbon sequestration and nitrogen, phosphorus and potassium dynamics of soil and plant and wheat production in semi-arid region. *Comm. Soil Science and Plant Analysis* 42:528-547.
23. Moebius-Clune, B.N., Elsevier, I.H., Crawford, B.A., Trautmann, N.M., Schindelbeck, R.R., **van Es, H.M.** 2011. Moving authentic soil research into high school classrooms: student engagement and learning. *Journal of Natural Resources and Life Sciences Education* 40:102-113.

24. Moebius-Clune, B.N., **van Es, H.M.**, Idowu, O.J., Schindelbeck, R.R., Kimetu, J.M., Ngoze, S., Lehmann, J., Kinyangi, J.M., 2011. Long-term Soil Quality Degradation along a Cultivation Chronosequence in Western Kenya. *Agriculture Ecosystems and Environment*, 141:86-99.
25. Bilgili. A.V., M.A. Cullu, **H.M. van Es**, A. Aydemir, and S Aydemir. 2011. The Use of Hyperspectral Visible and Near Infrared Reflectance Spectroscopy for the Characterization of Salt-Affected Soils in the Harran Plain, Turkey. *Arid Land Research and Management* 25: 19 - 37 (DOI: 10.1080/15324982.2010.528153).
26. Bilgili. A.V., F. Akbas, and **H.M. van Es**. 2011. Combined Use of Hyperspectral VNIR Spectroscopy and Kriging Methods to Predict Soil Variables Spatially. *Precision Agriculture* 12:395-420. (DOI 10.1007/s11119-010-9173-6).
27. Markewich, H.S.A., A.N. Pell, D.M. Mbugua, D.J.R. Cherney, **H.M. van Es**, J. Lehmann, J.B. Robertson. 2010. Effects of storage methods on manure systems and manure decomposition in soil in small-scale Kenyan systems. *Agriculture ,Ecosystems, and Environment* 139:134-141.
28. Graham, C.J., **H.M. van Es**, J.J. Melkonian, and D.A. Laird. 2010. Improved nitrogen and energy use efficiency using NIR estimated soil organic carbon and N simulation modeling. In: D.A. Clay and J. Shanahan. *GIS Applications in Agriculture – Nutrient Management for Improved Energy Efficiency*. pp 301-325, Taylor and Francis, LLC.
29. **van Es, H.M.** 2010. Historical and Emerging Soil and Water Conservation Issues in the Northeastern USA. *In: T. Zobeck and W. Schillinger. Soil and Water Conservation Advances in the US*. Pp. 163-182. Soil Science Soc. America. Special Publ. 60. Madison, WI.
30. Bilgili. A.V., **H.M. van Es**, F. Akbas, A. Durak, W.D. Hively, T. Owiyo, and S.D. DeGloria. 2010. Visible-Near- Infrared Reflectance Spectroscopy for Assessment of Soil Properties in Semi-Arid Turkey. *J. Arid Environment* 74:229-238.
31. Idowu, O., **H. M van Es**, G.S. Abawi,, D. W. Wolfe, R.R. Schindelbeck, B.N. Moebius-Clune, B. K. Gugino. 2009. Use of an integrative soil health test for evaluation of soil management impacts. *Renewable and Sustainable Agriculture* 24:214-224.
32. Tan, I.Y.S., **H. M. van Es**, J. M. Duxbury, J. J. Melkonian, R. R. Schindelbeck, L.D. Geohring, W.D. Hively, and B. N. Moebius. 2009. Nitrous Oxide Losses under Maize Production as Affected by Soil Type, Tillage, Rotation, and Fertilization. *Soil&Tillage Research* 102:19-26
33. Soldat, DJ; A.M. Petrovic, and **H.M. van Es**. 2008. The Effects of Soil Phosphorus and Nitrogen and Phosphorus Fertilization on Phosphorus Runoff Losses from Turfgrass. *Fate of Nutrients and Pesticides in the Urban Environment. American Chemical Society Symposium Series* 997:93-106.
34. Mochizuki, M.J., A. Rangarajan, **H.M. van Es**, R.B. Bellinder, and T.N. Bjorkman. 2008. Rye Mulch Improves Soil Quality in the Transition to Conservation tillage for Cabbage. *Hort Science* 43(2)1-6.
35. Moebius-Clune, B.N., **H. M. van Es**, J.O. Idowu, R.R.. Schindelbeck, D.J. Moebius-Clune, D.W. Wolfe, G.S. Abawi, J.E. Thies, B.K. Gugino, R. Lucey. 2008. Long-Term Removal of Maize Residue for Bioenergy: Will It Affect Soil Quality? *Soil Science Society of America Journal* 72:960-969.

36. Menete, M.Z.L., **H.M. van Es**, R.M.L. Brito, S.D. DeGloria, and S. Famba. 2008. Evaluation of System of Rice Intensification (SRI) Component Practices and Their Synergies on Salt-Affected Soils. *Field Crop Research* 109: 34-44. <http://dx.doi.org/10.1016/j.fcr.2008.06.003>
37. Schindelbeck, R.R., **H.M. van Es**, G.S. Abawi, D.W. Wolfe, T. L. Whitlow, B.K. Gugino, O.J. Idowu, and B.N. Moebius. 2008. Comprehensive Assessment of Soil Quality for Landscape and Urban Management. *Landscape and Urban Planning*.88:73-80. doi:10.1016/j.landurbplan.2008.08.006.
38. Soldat, D.J., A.M. Petrovic, and H.M. van Es. 2008. The effects of soil phosphorus and nitrogen and phosphorus fertilization on phosphorus losses from turfgrass. In: Nett et al. (eds.) *The fate of turfgrass nutrients and pesticides in the urban environment*. Chapter 6, ACS Symposium Series 997 pp. 93-106. American Chemical Society, Washington DC.
39. **van Es, H.M.** 2009. Crop rotations and soil tilth. In: C. L. Mohler and S.E. Johnson, ed. *Crop Rotation on Organic Farms: a Planning Manual*. NRAES: Ithaca, NY.
40. Idowu O.J., **H.M. van Es**, G.S. Abawi, D.W. Wolfe, J.I. Ball, B.K. Gugino, B.N. Moebius, R.R. Schindelbeck, and A.V. Bilgili. 2008. Farmer-Oriented Assessment of Soil Quality using Field, Laboratory, and VNIR Spectroscopy Methods. *Plant and Soil*.307:243-253.
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#### Book Chapters and Papers in Conference Proceedings

1. S, Sela, **H.M. van Es**, E. McClellan, and R. Marjerison, R. 2016. Using the Adapt-N model to inform policies promoting the sustainability of US maize production. Proc. 13<sup>th</sup> International Conference on Precision Agriculture. St. Louis, MO, USA.
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### **Extension Publications**

#### *Bulletins and Chapters*

1. Moebius-Clune, B.N., D.J. Moebius-Clune, B.K. Gugino, O.J. Idowu, R.R. Schindelbeck, A.J. Ristow, **H.M. van Es**, J.E. Thies, H. A. Shayler, M. B. McBride, D.W. Wolfe, and G.S. Abawi. 2016. Comprehensive Assessment of Soil Health – The Cornell Framework Manual, Edition 3.1, Cornell University, Geneva, NY.
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**van Es, H.M.** 2000-2005. Soil Health, Soil Erosion, Soil Compaction, and Tillage. In: Cornell Guide for Integrated Field Crop Production 2001. pp 13-24 Cornell Cooperative Extension
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#### *Videos*

1. Watersheds and NPS Pollution Control
2. Watershed Hydrology
3. Soils and Their Role in Protecting Water Quality

4. Demonstrating Field Capacity of Soils (8 minutes, 4 sold)
5. Nitrate Leaching (7 minutes)

*Articles*

1. Lindsay Fennell, Bob Schindelbeck, Aaron Ristow, and Harold van Es. 2016. Winthrop Square Park Project: Using Cornell University's Comprehensive Assessment of Soil Health in an Urban Environment. *What's Cropping Up?* Vol. 26 No.4.
2. Aaron Ristow, Shai Sela, Mike Davis, Lindsay Fennell, Harold van Es. 2016. Water Quality Impacts Reduced with Adapt-N Recommendations. *What's Cropping Up?* Vol. 26 No.2.
3. Lindsay Fennell, Shai Sela, Aaron Ristow, Harold van Es, Shannon Gomes. 2015. Comparing Static and Adaptive Nitrogen Rate Tools for Corn Production. *What's Cropping Up?* Vol. 25 No.5.
4. Lindsay Fennell, Shai Sela, Aaron Ristow, Bianca Moebius-Clune, Dan Moebius-Clune, Bob Schindelbeck, **Harold van Es**, Shannon Gomes. 2015. Adapt-N Recommendations Reduce Environmental Losses. *What's Cropping Up?* Vol. 25 No.5.
5. Lindsay Fennell, Bianca Moebius-Clune, Aaron Ristow, and **Harold van Es**. 2015. Corn Stalk Nitrate Test Shows Low Accuracy for Evaluating Corn Deficiencies and Excesses. *What's Cropping Up?* Vol. 25 No.4.
6. Margaret Ball, Bianca Moebius-Clune, Shannon Gomes, Aaron Ristow, **Harold van Es**. 2015. Farmers with Diverse Nitrogen Management Practices Find Value in the Adapt-N Tool in Iowa. *What's Cropping Up?* Vol. 25 No.1.
7. Bianca Moebius-Clune, Margaret Ball, **Harold van Es**, Jeff Melkonian. 2014. Adapt-N Boosts Profits and Cuts N Losses in Three Years of On-Farm Trials in New York and Iowa. *What's Cropping Up?* Vol. 24 No.5.
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