CURRICULUM VITAE

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Jiyul Chang, Lecturer/Research Associate

Ph.D. in Agronomy (Precision Ag, GIS, Remote Sensing)

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Education

Ph.D. in Agronomy, South Dakota State University, Brookings, SD, May 2002.
M.S. in Agronomy, South Dakota State University, Brookings, SD, July 1997.
B.S. in Biology, Yonsei University, Seoul, Korea, Feb. 1988.

Employments

Lecturer in Agronomy, Horticulture, and Plant Science Department, South Dakota State University (August 2015 - Present).
Research Associate II in Plant Science Department, South Dakota State University (June 2009 – July 2015).
Research Associate II in Geographic Information Science Center of Excellence, South Dakota State University (June 2006 – May 2009).
Post-doctoral research associate in Plant Science Department, South Dakota State University (May 2002 – May 2006).

Teaching Responsibility

PS 213: Introductory Soil Lab
PS/HO 285: Agricultural Computation
PS 427: Precision Ag Data Mapping
PS 440L: Crop Management with Precision Farming Lab

Research Projects

Measuring

Cropping systems: water use efficiency, nutrient use efficiency, C sequestration
Geospatial analysis and mapping using GIS
Remote sensing for crop and nutrients management
Crop field mapping using various satellite images

Grants:

Syngenta: Advanced Remote Sensing Project for Mapping Crop Fields

e. Leaf area measurement

Peer Reviewed Publications

1. Chang, J., D. E. Clay, S. A. Clay, A. J. Smart, and. M. Ohrtman (2017). An In-Situ Precision Conservation Assessment Method for Measuring Feces NH3-N and CO2-C Emissions and Decomposition Rate Constants. (Accepted in Agron. J.).

2. Clay, D.E. G. Reicks, J. Chang, T. Kharel, S.A. Bruggeman. (2017). Assessing a fertilizer program: short- and long-term approaches. In A. Chatterjee and D. Clay (eds), Soil Fertility Management in Agroecosystems. ASA/Crop Science/SSSA digital library, Madison WI. (In press)

3. Chang, J., D. E. Clay, S. A. Clay, R. Chintala, J.M. Miller, and T. Schumacher (2016). Biochar Reduced Nitrous Oxide and Carbon Dioxide Emissions from Soil with Different Water and Temperature Cycles. Agron. J. 108:2214-2221.

4. Chang, J., D. E. Clay, A. Smart, S. Clay. (2016). Estimating annual root decomposition in grassland systems. Rangeland Ecology & Management. 69:288-291.

5. Chang, J., D.E. Clay, S.A. Hansen, S.A. Clay, and T. Schumacher. (2014). Water stress impacts on transgenic corn in the northern Great Plains. Agron. J. 106:125-130.

6. Clay, D.E., J. Chang, S. A. Clay, J. Stone, R. H. Gelderman, G. C. Carlson, K. Reitsma, M. Jones, L. Janssen, and T. Schumacher. (2012). Corn Yields and No-Tillage Affects Carbon Sequestration and Carbon Footprints. Agronomy Journal. 104:763-770.

7. Chang, J., D.E. Clay, L. Leigh, D. Aaron, K. Dalsted, and M. Volz. (2008). Evaluating modified atmospheric correction methods for Landsat imagery: Image-based and model-based calibration methods. Communications in Soil Science and Plant Analysis. 39:1532-1545.

8. Chang, J., Matthew C. Hansen, Kyle Pittman, Mark Carroll, and Charlene Dimiceli. (2007). Corn and soybean mapping in the United States using MODIS time-series data sets. Agronomy Journal. 99:1654-1664.

9. Clay, D.E., K. Kim, J. Chang, S.A. Clay, and K. Dalsted. (2006). Characterizing water and nitrogen stress in corn using remote sensing. Agronomy Journal. 98:579-587.

10. Clay, D.E., C.G. Carlson, S.A. Clay, C. Reese, Z. Liu, J. Chang, and M.M. Ellsbury. (2006). Theoretical derivation of stable and nonisotopic approaches for assessing soil organic carbon turnover. Agronomy Journal. 98:443-450.

Crop Management Manual Books

1. Chang, J., C.L. Reese, T. Kharel, S.A. Clay, and D.E. Clay. (2016). An Introduction to Precision Farming. Chapter 19 in Corn: Best Management Practices. In Clay, D.E., C.G. Carlson, S.A. Clay, and E. Byamukama (eds). iGROW South Dakota State University.

2. Clay, D.E., J. Chang, and C.G. Carlson,. (2016). Precision Soil Sampling. Chapter 21 in Corn: Best Management Practices. In Clay, D.E., C.G. Carlson, S.A. Clay, and E. Byamukama (eds). iGROW South Dakota State University.

3. Chang, J., and D. E. Clay. (2016). Matching Remote Sensing Tool to Your Problems. Chapter 22 in Corn: Best Management Practices. In Clay, D.E., C.G. Carlson, S.A. Clay, and E. Byamukama (eds). iGROW South Dakota State University.

4. Chang, J., D.E. Clay, S.A. Clay and C. Reese. (2013). Using Remote Sensing Technique to Assess Soybean Yield Limiting Factors. Chapter 16. *In* Clay, D.E., Carlson, C.G. Clay, S.A., Wagner, L., Deneke, D., Hay, C. (eds). IGROW Soybean: Best Management Practices. South Dakota State University, Extension Service, Brookings, SD.

5. Clay, D.E., C.G. Carlson, J. Chang, and C. Reese. (2013). Overcoming production barriers using precision soil sampling. Chapter 20. *In* Clay, D.E., C.G. Carlson, S.A. Clay, L. Wagner, D. Deneke, and C. Hay, C. (eds). iGrow Soybean: Best Management Practices. South Dakota State University, Extension Service, Brookings, SD.

6. Chang, J., K. Dalsted, D.E. Clay, and G. Carlson. (2012). Precision wheat management. Chapter 14. *In* Clay, D.E., C.G. Carlson, and K. Dalsted (eds). iGrow Wheat: Best Management Practices for Wheat Production. South Dakota State University, South Dakota Cooperative Extension Service, Brookings, SD.

Book

Clay, D.E., N. Kitchen, C. Gregg Carlson, Jonathan Kleinjan, and Jiyul Chang. (2007). Using historical management to reduce soil sampling errors. p49-64. *In* F.J. Pierce and D.E. Clay (ed.). GIS Applications in Agriculture, CRC Press.

Site-Specific Management

2. Clay, D.E., C.G. Carlson, and <u>J. Chang</u>. (2004). Determining the "Best" approach to identify nutrient management zones: A South Dakota example. Site Specific Management Guidelines #41. Potash & Phosphate Institute. South Dakota State University.

3. Dalsted, K., L.F. Paris, D.E. Clay, S.A. Clay, C.L. Reese, and <u>J. Chang</u>. (2003). Selecting the Appropriate satellite remote sensing product for precision farming. Site Specific Management Guidelines #40. Potash & Phosphate Institute. South Dakota State University. Brookings, SD 57007.

Thesis and Dissertation

<u>Chang, Jiyul</u>. (2002). Identifying Management Zones Using Soil, Crop, and Remote Sensing Information. Ph.D. Dissertation. Plant Science Department, South Dakota State University. Brookings, SD.

<u>Chang, Jiyul</u>. (1997). Soil Spatial Variability as Influenced by Landscape Position and Soil Sampling Strategy. Theses for MS. South Dakota State University, Brookings, SD 57007.

Proceedings

1. <u>Chang, J</u>., D.E. Clay, C.G. Carlson, S.A. Clay, and D.D. Malo. (2003). The Influence of Different Classification Approaches on N and P fertilizer Recommendations. *In* P.C. Robert et al. (ed.). Proceeding of the 6th International Conference on Precision Agriculture. July 14-17, 2002. Minneapolis, MN. ASA-CSAA-SSSA, Madison WI.

2. Clay, D.E., <u>J. Chang</u>, C. Reese, Z. Liu, C.G. Carlson, and S.A. Clay. (2003). The influence of landscape position, nitrogen, and available water on soybean quality. *In* P.C. Robert et al. (ed.). Proceeding of the 6th International Conference on Precision Agriculture. July 14-17, 2002. Minneapolis, MN. ASA-CSAA-SSSA, Madison WI.

3. <u>Chang, J</u>., D.E. Clay, C.G. Carlson, S.A. Clay, and C.L. Reese. (2000). The Influence of Different Approaches for Identifying Inorganic N and P Management Zones on Fertilizer Recommendation. [CD-ROM computer file]. *In*

A. Madison WI.

Conference on Precision Agriculture. July 19-22, 1998. St. Paul, MN. ASA-CSAA-SSSA, Madison WI.

Other Publications

1. <u>Chang, J</u>. (2008). Mapping corn and soybean in the U.S. using moderate spatial resolution satellite imagery. Crop, Soils, Agronomy News. Vol. 53 No 1.

2. Johnston, C.A. and <u>J. Chang</u>. (2005). Vegetative indicators of condition, integrity, and sustainability of Great Lakes coastal wetlands. US EPA STAR program progress report.

3.

Locate Areas with High Olsen P. PPI Project Annual Report, Plant Science Department, SDSU, Brookings, SD.

11. Clay, D.E., J. Chang, C.G. Carlson, D.D. Malo, S.A. Clay, and M. Ellsbury. (1999). Precision Farming Protocols: Part 2. A Comparison of Sampling Approaches for Precision P Management. PPI Project Annual Report, Plant Science Department, SDSU, Brookings, SD.

12. Clay, D.E., J. Chang, S.A. Clay, M. Ellsbury, C.G. Carlson, D.D. Malo, D. Woodson,