

## **CURRICULUM VITAE**

### **NAME**

Khosla, Rajiv

### **ADDRESS**

Soil and Crop Sciences  
College of Agricultural Sciences

Plant Sciences

### **PHONE**

(970) 491-1920

### **EDUCATION**

1998 Ph D, Virginia Tech

1995 MS, Virginia Tech

1992 BS, University of Allahabad

### **ACADEMIC POSITIONS**

October 1, 2013 - Present Assistant Dean, Colorado State University.

August 1993 - December 1997 Graduate Research Assistant, Virginia Tech.

### **OTHER POSITIONS**

August 2012 - Present Jefferson Science Fellow, Department of State.

June 2011 - Present NASA appointed Board Member, US Presidential Advisory Committee on Positioning Navigation and Timing.

July 2010 - Present Professor, Colorado State University.

March 2010 - Present Visiting Professor, King Saud University.

June 2009 - Present Visiting Professor, National Engineering Research Center for Information Technology in Agriculture.

June 2009 - 2011 Monfort Professor, Colorado State University.

July 2005 - June 2010 Associate Professor, Colorado State University.

September 1999 - June 2005 Assistant Professor, Colorado State University.

January 1998 - August 1999 Research Associate, Virginia Tech.

(November 1, 2013 - Present) Assistant Dean, College

### **PUBLISHED WORKS**

## Refereed Journal Articles

- Khosla, R. (2016). Interpolation type and data computation of crop yield maps is important for precision crop production. *Journal of Plant Nutrition*.
- (2012). Evaluation of two crop canopy sensors for nitrogen recommendations in irrigated maize. *J of Plant Nut Soil Analysis (accepted in press)*.
- (2012). Modeling the Spatial Distribution of Soil Texture in the State of Jalisco, Mexico. *Soil Sci Soc Of Amer J*, 76, 199-209.
- Cao, Q., Khosla, R. (2012). Quantifying spatial variability of indigenous nitrogen supply for precision nitrogen management in small scale farming. *Int'l J of Preci Ag*, 13, 45-61.
- Khosla, R. (2012). Site Productivity Curves for the Diverse Forest Types of Jalisco, Mexico. *J of Madera and Bosques*.
- (2011). Evaluation of ground-based active remote sensors for nitrogen management: Field Study. *Int'l J of Preci Agri*.
- (2011). Layering Precision Land Leveling and Furrow Irrigated Raised Bed Planting: Productivity and Input Use Efficiency of Irrigated Bread Wheat in Indo-Gangetic Plains. *Am J of Plant Sci*, 2, 578-588.
- (2011). Recent Advances in Precision (Target) Conservation. *Featured Article, J of Soil & Water Consvr*, 6(66), 167A-179A.
- (2011). Spatial distribution of enhanced Atrazine degradation across northeastern Colorado Cropping Systems. *J Environ Qual*, 40, 46-56.
- (2010). Evaluation of two ground-based active remote sensors for N variability determination in maize under greenhouse conditions. *J of Soil Sci Soc of Amer*, 74, 2101-2108.
- (2010). QuickBird satellite versus ground-based multi-spectral data for estimating nitrogen status of irrigated maize. *Precis Agric*, 11, 274-290.
- (2010). Spatial and Temporal Distribution of Iris yellow spot virus and Thrips in Colorado Onion Fields. *J of Plant Health Progress*.
- Schwartz, H. F., Gent, D. H., Fichtner, S. M., Khosla, R., Reich, R., Camper, M. A., Mchaffey, L. A., Cranshaw, W. S. (2010). Spatial and temporal distribution of Iris yellow spot virus and thrips in Colorado onion fields. *APS Plant Management Network*. doi: 10:1094/PHP-2010-0820-01-RS
- (2008). A synthesis of multi-disciplinary research in precision agriculture. *Precis Agric*, 9, 85-100.
- (2008). How well does zone sampling based on soil electrical conductivity maps represent soil variability? *Agron J*, 100, 1472-1480.
- (2008). Normalized difference vegetation index and soil color-based management zones in irrigated maize. *Agron J*, 100, 60-66.
- (2008). Spatial Variability of Atrazine and Metolachlor Dissipation on Dryland No-tillage Crop Fields in Colorado. *J Environ Qual*, 37, 2212-2220.

- (2007). Active remote sensing and grain yield in irrigated maize. *Precis Agric*, 8, 241-252.
- (2007). Insect pest densities across site-specific management zones of irrigated corn in northeastern Colorado. *J Econ Entomol*, 100, 781-789.
- (2007). What does undergraduate enrollment in soil and crop sciences mean for the future of agronomy? *Agron J*, 99, 1169-1174.
- (2006). Comparison of site-specific management zones. *Agron J*, 98, 407-415.
- (2006). Temporal and spatial stability of soil test parameters used in precision agriculture. *Commun Soil Sci Plan*, 37, 2127-2136.
- (2005). Applying spatial analysis for precision conservation across the landscape. *J Soil Water Conserv*, 60, 363-370.
- (2005). Early season grain yield prediction using remote sensing and site-specific management zones. *Agron J*, 98, 835-841.
- (2005). Nitrogen fertilizer management based on site-specific management zones reduces potential for nitrate leaching. *J Soil Water Conserv*, 60, 402-410.
- (2005). Nitrogen uptake across site specific management zones in irrigated corn production systems. *Agron J*, 97, 169-176.
- (2005). Optimum N management using site-specific management zones. *Agron J*, 98, 827-834.
- (2005). Spatial variability of measured soil properties across site-specific management zones. *Soil Sci Soc Am J*, 69, 1572-1579.
- (2004). Distribution and incidence of Iris yellow spot virus in Colorado and its relation to onion plant population and yield. *Plant Dis*, 88, 446-452.
- (2004). Economic feasibility of variable-rate nitrogen application utilizing site-specific management zones. *Agron J*, 96, 1572-1580.
- (2004). Managing Iris yellow spot virus of onion with cultural practices, host genotype, and novel chemical treatments. *Phytopathology*, 94, S34-S34.
- (2004). Vulnerability assessments of Colorado ground water to nitrate contamination. *Water Air Soil Poll*, 159, 373-394.
- Gent, D. h., Schwartz, H. F., Khosla, R. (2004). Distribution and incidence of Iris yellow spot virus in Colorado and its relation to onion plant population and yield. *Plant Dis*, 88, 446-452.
- (2003). Evaluation of site-specific management zones. *Plant Dis*, 88, 297-302.
- (2003). Precision conservation for environmental sustainability. *J Soil Water Conserv*, 58, 332-339.
- (2003). Spatial dependence of soil samples and precision farming applications. *Plant Dis*, 88, 223-228.
- (2002). Differentiating soil types using electromagnetic conductivity and crop yield maps. *Soil Sci Soc Am J*, 66,

1562-1570.

- (2002). No-till corn yields and water balance in the mid-Atlantic coastal plain. *Agron J*, 94, 612-623.
- (2002). Use of site-specific management zones to improve nitrogen management for precision agriculture. *J Soil Water Conserv*, 57, 513-518.
- (2000). Nitrogen management in no-tillage grain sorghum production. *Agron J*, 92, 321-328.
- (1999). Partitioning soil-water losses in different plant populations of dry-land corn. *Agr Water Manage*, 42, 157-172.
- (1999). Phosphorous and potassium fertilizer recommendation variability for two mid-Atlantic Coastal Plain fields. *Soil Sci Soc Am J*, 63, 1740-1747.
- (1998). Performance of a non-nuclear resonant frequency capacitance probe, Error analysis. *Commun Soil Sci Plan*, 29, 2981-2989.
- (1997). Performance of a non-nuclear resonant frequency capacitance probe, Calibration and field testing. *Commun Soil Sci Plan*, 28, 1333-1345.

### **Non-Refereed Journal Articles**

- M., Khosla, R., Reich, R. (2015). Bare Soil Reflectance to Characterize Variability in Soil Properties. *Commun. In Soil Sci.*
- Khosla, R. (2015). Evaluation of Sorption Coefficients for Pyroxasulfone, s-Metolachlor, and Dimethenamid-p. *Air Soil And Water Research*.
- Khosla, R. (2015). Managing In-Field Spatial Variability. *The Fluid Journal*, 23(3/#89), 2. <http://www.twitter.com/fluidjournal>
- Moshia, M., Khosla, R., Westfall, D. G., Davis, J. G., Reich, R., Longchamps, L. (2015). Precision Manure Management across Site-Specific Management Zones: Top Soil Quality and Environmental Impact. *Commun. In Plant Sci and Anal.*
- Khosla, R. (2015). Profit Maps for Precision Agriculture. *Ciencia E Investigacion Agraria*, 42(3):385-396. 2015. [www.rcia.uc.cl](http://www.rcia.uc.cl)
- Khosla, R. (2015). Spatial and Temporal Variability of Soil Water Content in Leveled Fields. *Soil Science Society of America*, 79(Soil Sci. Soc. Am. J. 79:1446–1454.), 8.
- Longchamps, L., Khosla, R., Reich, R. M. (2015). Spatial and Temporal Variability of Soil Water Content in Leveled Fields. *Soil Science Society of America Journal*.
- Cao, Q., Miao, Y., Feng, G., Gao, X., Li, F., Liu, B., Yue, S., Chencg, S., Ustin, S., Khosla, R. (2014). An evaluation of two sensor systems. *Comput. Electron. Computers and Electronics in Agriculture*. <http://dx.doi.org/10.1016/j.compag.2014.08.012>
- Patil, V. C., Algaadi, K., Madugundu, R., Tola, E., Marey, S., Khosla, R., Al-Omran, A., Upadhyaya, S., Mulla, D., Al-Dosari, A. (2014). Delineation of Management Zones and Response of Spring Wheat (*Triticum aestivum* L.) to Irrigation and Nutrient Levels in Saudi Arabia. *INTERNATIONAL JOURNAL OF AGRICULTURE & BIOLOGY*. <http://www.fspublishers.org>

- Khosla, R., Longchamps, L. (2014). Early detection of nitrogen variability in maize using fluorescence. *Agronomy Journal*.
- Shaver, T., Khosla, R., Westfall, D. G. (2014). Evaluation of Two Crop Canopy Sensors for Nitrogen Management in irrigated Maize. *Journal of Plant Nutrition*, 37(3), 406-419.
- Yao, Y., Miao, Y., Cao, Q., Wang, H., Gnyp, M., Bareth, G., Khosla, R., Yang, W., Liu, F., Liu, C. (2014). In-season estimation of rice nitrogen status with an active crop canopy sensor. *IEEE J. Sel. Topics Appl. Earth Observ. Remote Sens.*. <http://dx.doi.org/10.1109/JSTARS.2014.2322659>.
- Mohammad, A., Reich, R., Khosla, R., Aguirre-Bravo, C., Briseño, M. M. (2014). Influence of climatic conditions, topography and soil attributes on the spatial distribution of site productivity index of the species rich forests of Jalisco, Mexico. *Journal of Forestry Research*.
- Moshia, M., Khosla, R., Davis, J. G., Reich, R., Longchamps, L. (2014). Precision Manure Management Across Site-Specific Management Zones: grain Yield and Economic Analysis. *Agronomy Journal*.
- Moshia, M., Khosla, R., Davis, J. G., Reich, R. (2014). Precision Manure Management on Site-specific Management Zones: Nitrogen Mineralization. *Journal of Plant Nutrition*.
- Memarian, H., Balasundram, S. K., Khosla, R. (2013). Comparison between pixel- and objectbased image classification of a tropical landscape using Système Pour l'Observation de la Terre-5 imagery. *Journal of Applied Remote Sensing*, 14.
- Balasundram, S., Memarian, H., Khosla, R. (2013). Estimating Oil Palm Yields Using Vegetation indices Derived from Quickbird. *Life Sciences Journal*, 10(4) 851-860.(10(4) 851-860.).
- Cao, Q., Miao, Y., Wang, H., Huang, S., Cheng, S., Khosla, R., Jiang, R. (2013). Non-destructive estimation of rice plant nitrogen status with CropCircle multispectral active canopy Sensor. *Field Crops Research*.

### **Non-Refereed Chapters in Books**

- Kleinman, P., Buda, A., Sharpley, A., Khosla, R. (2015). *Elements of Precision Manure Management*.. Precision Conservation. J..
- Mullas, D., Khosla, R. (2015). *Historical Evolution and Recent Advances in Precision Farming*.. Advances in Soil Sciences.

### **Non-Refereed Proceedings or Transactions**

- Longchamps, L., Khosla, R., Westfall, D. G. (2013). Can fluorescence based sensing detect nitrogen deficiency at early growth stages of maize? *Chapter in a Book*. Precision Agriculture.
- Miao, Y., Khosla, R., Yao, Y., Knip, M., Bareth, G., Jiang, R. (2013). *Evaluating Different Active Crop Canopy Sensors for Estimating Rice Yield Potential*. Proceedings of the Second International Conference on Agro-Geoinformatics, Fairfax, VA USA.
- Wang, H., Miao, Y., Zhao, G., Yao, Y., Khosla, R. (2013). *Evaluating Different Precision Rice Management Strategies in Northeast China*. Proceedings of the Second International Conference on Agro-Geoinformatics, Fairfax, VA USA.

- (2012). *A Combine Harvester Made for India's Small Farms*. Soils & Crop Magazine, May-June.
- (2012). *A statistical and agronomic approach for Definition of Management zones in Corn and Soybean*. In the CD-Rom Proceedings of the 11th International Conference on Precision Agriculture, Indianapolis, IN.
- (2012). *Active Sensing for rapid Evaluation of apparent Nitrogen Use Efficiency in Winter Wheat Genotypes*. Abstracts of the Annual meetings of the American Society of Agronomy, Cincinnati, OH.
- (2012). *Can Active Sensor Based NDVI Consistently Classify Wheat Genotypes?*. In the CD-Rom Proceedings of the 11th International Conference on Precision Agriculture, Indianapolis, IN.
- (2012). *Can We Feed the Seven Billion?*. BBC Future Science and Environment: <http://www.bbc.com/future/story/20120210-is-this-the-new-green-revolution>.
- (2012). *Comparing sensing platforms for Crop Remote Sensing*. In the CD-Rom Proceedings of the 11th International Conference on Precision Agriculture, Indianapolis, IN.
- (2012). *Could Active Sensor Based NDVI readings Differentiate NUE in Wheat Genotypes?*. Proceedings of the Great Plains Soil Fertility Meetings in Denver, CO.
- (2012). *Current and future agricultural practices and technologies which affect fuel efficiency*. Harper Adams University, United Kingdom.
- (2012). *Early Detection of Nitrogen Deficiency in Corn using Fluorescence*. Abstracts of the Annual meetings of the American Society of Agronomy, Cincinnati, OH.
- (2012). *Induced Fluorescence as a signature of Early Crop Nitrogen Deficiency*. Proceedings of the Great Plains Soil Fertility Meetings in Denver, CO.
- (2012). *New technologies boost crop yield, save money, time, resources*. Impact, November.
- (2012). *Precision Ag in the Developing World* (pp. 9-Jan). CAS Newsletter, February.
- (2012). *Precision Ag makes in roads in India* (pp. 13-Dec). Soils & Crop Magazine, May-June.
- (2012). *Precision Agriculture for Small Scale Agricultural Production Systems*. Abstract books of the Third National Conference on Agro-Informatics and Precision Agriculture, Hyderabad, India.
- (2012). *Precision Agriculture, Food Security*. Abstract of the Vth World Congress of Agrologists and Agronomists, Quebec City, Canada.
- (2012). *Precision Nitrogen Management and Global Nitrogen Use Efficiency*. In the CD-Rom Proceedings of the 11th International Conference on Precision Agriculture, Indianapolis, IN.
- (2012). *The Constant Challenges for Precision Agriculture to be established as a Management System of Agricultural Fields*. Proceedings of the ConBAP, International Precision Agriculture Conference, Reiberio Preto, Brazil.
- (2011). *A 10-Year Look Ahead At Row Crop Technology*. Future of Ag, September.
- (2011). *Active remote sensing for rapid evaluation of apparent nitrogen use efficiency in winter wheat (*Triticum aestivum* L) genotypes*. Proceedings of the European Conference on Precision Agriculture, Prague, Czech Republic, July.

- (2011). *Active Sensor based Evaluation of Multiple Wheat genotypes Across Dryland and Irrigated Cropping Systems*. Abstracts of the Annual meetings of the American Society of Agronomy, San Antonio, TX Oct 16-19.
- (2011). *Comparison of two active remote canopy sensors to develop N fertilizer algorithms*. Proceedings of the European Conference on Precision Agriculture, Prague, Czech Republic, July.
- (2011). *Early detection of Nitrogen Deficiency in Corn using Fluorescence*. Proceedings of the 2nd Global Workshop on Proximal Soil Sensing, Montreal, Canada May 2011.
- (2011). *Food Security and Precision Agriculture*. Abstracts of the Annual meetings of the American Society of Agronomy, San Antonio, TX. Oct 16-19.
- (2011). *Food Security and Precision Agriculture*. Abstract book of the Annual Meetings of the Western Soil Science Society & Western Crop Science Society, Laramie, WY, June.
- (2011). *Global Food Security and Precision Agriculture*. Program book of the Sixth International Symposium on Intelligent Information Technology in Agriculture Beijing, China Oct 2011.
- (2011). *Precision Agriculture for small Scale Agricultural Systems*. Program book of the 4th Asian Conference on Precision Agriculture, Obihiro, Japan July-2011.
- (2011). *Precision Agriculture for small Scale Agricultural Systems*. Program book of the European Conference on Precision Agriculture, Prague, Czech Republic. July 2011.
- (2011). *Precision Manure Management Conservation practices: Surface Soil Quality and Environmental Impact*. Abstracts of the Annual meetings of the Soil Science Society of America, Washington, DC July.
- (2011). *Precision Manure Management Conservation practices: Surface Soil Quality and Environmental Impact*. Abstracts of the Annual meetings of the American Society of Agronomy, San Antonio, TX Oct 16-19.
- (2011). *Precision Nutrient Management and Crop Sensing*. Proceedings of the 2nd International Plant Phenotyping Symposium 2011 Julich, Germany, September, 2011.
- (2011). *Precision Nutrient Management: Challenges and Opportunities in a Flat World*. Abstracts book of the 2011 International Symposium on Sensing in Agriculture in Memory of Dahlia Greidinger (Agri Sensing Feb 2011).
- (2010). *Active Remote Sensing: An Innovative Technique for Precision Fertilization* (1st ed., vol. 29, pp. 4-Mar). Extension Newsletter From the Ground Up.
- (2010). *Development Of A Nitrogen Requirement Algorithm Using Ground-based Active Remote Sensors In Irrigated Maize*. In the CD-Rom Proceedings of the 10th International Conference on Precision Agriculture, Denver, CO July.
- (2010). *Evaluation of Different N Management Strategies Using A Tool For Fuzzy Multi Attributive Comparison Of Alternatives*. In Irrigated Maize In the CD-Rom Proceedings of the 10th International Conference on Precision Agriculture, Denver, CO July.
- (2010). *How rapidly does enhanced atrazine degradation develop?*. Abstracts of the Annual meetings of the Weed Science Society of America, Denver, CO.

- (2010). *Nitrogen and Water Management Across Site Specific Management Zones Using Active remote Sensing*. In the CD-ROM Proceedings of the Fluid Fertilizer Foundation Conference, February, Scottsdale, AZ.
- (2010). *Precision Agriculture and Resource Management for Livelihood Security in Small Agricultural Systems*. In the Proceedings of the Indian Society of Agronomy Meetings in Bangalore, India.
- (2010). *Precision Agriculture: Challenges and Opportunities in a Flat World*. In the Proceedings of the 19th World Congress of Soil Science, Brisbane, Australia, August.
- (2010). *Precision Agriculture: Opportunities and Challenges in a Flat World*. In the Proceedings of the Great Plains Soil Fertility Conference Denver, CO.
- (2010). *Precision Manure Management Strategies Site Specific Management Zones for Enhancing Corn Grain Yield*. Abstracts of the Annual meetings of the American Society of Agronomy, Long Beach, CA Nov, 1-5th.
- (2010). *Precision Manure Management: It matters where you put your manure*. Abstracts of the annual meetings of the Western Society of Soil Science, Las Vegas, NV, June.
- (2010). *Precision Manure Management: It matters where you put your manure*. In the CD-Rom Proceedings of the 10th International Conference on Precision Agriculture, Denver, CO.
- (2010). *Quantifying Spatial Variability of Indigenous Nitrogen Supply for Precision Nitrogen Management in North China Plain*. In the CD-Rom Proceedings of the 10th International Conference on Precision Agriculture, Denver, CO.
- (2010). *Spatial and Temporal Changes in Atrazine Degradation Rates in Soil*. In the CD-Rom Proceedings of the 10th International Conference on Precision Agriculture, Denver, CO.
- (2010). *Spatial Distribution of Enhanced Atrazine Degradation Across North Eastern Colorado: A Survey*. Abstracts of the Annual meetings of the Western Weed Science Society of America, Big Island, HI, March.
- (2010). *Spatio-Temporal Analysis of Atrazine Degradation And Associate Attributes In Eastern Colorado Soils*. In the CD-Rom Proceedings of the 10th International Conference on Precision Agriculture, Denver, CO.
- (2010). *Treasure Maps, Yield Maps Are Not Enough For Farmers Today: Learn How To Use The Latest Mapping*. Successful farming, June.
- (2009). *Abstract*. In program book of the Joint International Agriculture Conference, Wageningen, Netherlands July 6th-8th.
- (2009). *Bare soil remote sensing imagery for smart soil sampling of management zones*. In the abstract book of the International Soil Science and Plant Analysis Conference, Santa Rosa, CA July 20-24th.
- (2009). *Economics of Fertilization Under Site-Specific Management Zones*. In the Proceedings of the 2009 Western Nutrient Management Conference Salt Lake City, UT.
- (2009). *Enhanced Atrazine Degradation: A Survey of Crop Fields in North-Eastern Colorado*. In Abstracts of the Annual meetings of the Weed Science Society of America, Orlando, FL Feb, 9th - 12th.
- (2009). *Evaluating Different Chlorophyll meter-based approaches to diagnose nitrogen status of summer maize*. Proceedings of the 3rd Asian Conference on Precision Agriculture (ACPA) 14-17 October 2009, Beijing, China.



- (2009). *Evaluation of Ground-Based Active Remote Sensors for Nitrogen Management in Irrigated Maize*. In Abstracts of the Annual meetings of the American Society of Agronomy, Pittsburgh, PA Nov, 1-5th.
- (2009). *Precision Agriculture: Challenges and Opportunities in the Flat World*. In the proceedings of the 3rd Asian Conference on Precision Agriculture, Beijing, China October 14th-16th.
- (2009). *Precision Agriculture: Opportunities and Challenges in a Flat World*. In the Proceedings of the International Conference on Food Security and Environmental Sustainability Kharagpur, India Dec.
- (2009). *Precision Agriculture: Opportunities and Challenges in a Flat World*. In the Proceedings of the 2nd National Conference on Agro-Informatics and precision Farming Raichur, India Dec.
- (2009). *Precision Guidance System: Is Now the Right time?* (3rd ed., vol. 27, pp. 16-18). Extension Newsletter From the Ground Up.
- (2009). *Precision Manure Management across Site-Specific Management Zones in the Western Great Plains of the USA*. In the CD-ROM Proceedings of the European Conference on Precision Agriculture, Wageningen, July.
- (2009). *Precision Manure Management on Site-Specific Management Zones: Surface soil quality and environmental impact*. In the abstract book of the Western Society of Soil Science Annual Meetings Fort Collins, CO June 22-23rd.
- (2009). *Precision Manure Management: Enhancing Soil Quality and Productivity*. Newsletter of the Colorado Livestock Association.
- (2009). *Precision Manure Management: It matters where you put your manure* (3rd ed., vol. 28, pp. 24-25). Extension Newsletter From the Ground Up.
- (2009). *Red and amber normalized difference vegetation index (NDVI) ground-based active remote sensors for nitrogen management in irrigated corn*. In the CD-ROM Proceedings of the Fluid Fertilizer Foundation Conference, February, Scottsdale, AZ.
- (2009). *Remote Sensors to Estimate Winter Wheat Growth*. Abstracts of the Annual meetings of the American Society of Agronomy, Pittsburgh, PA Nov, 1-5th.
- (2009). *Soil Management Zones Increase N Efficiency*. <http://www.precisionpays.com/2009/07/infoag-talk-soil-management-zones-increase-n-efficiency/> July 30, 2009.
- (2009). *Uncertainty of Soil Test P and K across Tillage Systems of the Midwest*. Abstracts of the Annual meetings of the American Society of Agronomy, Pittsburgh, PA Nov, 1-5th.
- (2009). *Zone Soil Sampling: A smart way to quantify in-field variability for crop management* (1st ed., vol. 28, pp. 11-Oct). Extension Newsletter From the Ground Up.
- (2008). *Correlation of normalized difference vegetative indices (NDVI) and crop variables with corn grain yield*. In Proceedings of the 9th International Conference on Precision Agriculture, Denver, CO July 21-23.
- (2008). *Grid Sampling may be best, but zone sampling may be right*. Ag Professional, April.
- (2008). *Ground based active remote sensors to determine Nitrogen variability in irrigated corn*. In Abstracts of the Annual meetings of the American Society of Agronomy, Houston, TX Oct, 5th- 9th.

- (2008). *Have you noticed your atrazine application is not protecting your crop anymore?* (4th ed., vol. 27, pp. 7-Jun). Extension Newsletter From the Ground Up.
- (2008). *Long Train of Technology Continue to Advance*. High Plains Journal, Nov.
- (2008). *Matt Nilsson* (10th ed., vol. 53, pp. 4-Feb). Crop Soil and Agronomy News (CSA News) October.
- (2008). *Modeling the Spatial Distribution of Soil pH In The State Of Jalsico, Mexico*. In Proceedings of the 9th International Conference on Precision Agriculture, Denver, CO July 21-23.
- (2008). *Myths of Precision Farming* (2nd ed., vol. 27, pp. 14-16). Extension Newsletter From the Ground Up, August.
- (2008). *New Advances and Practices for Precision Conservation*. In Proceedings of the 9th International Conference on Precision Agriculture, Denver, CO July 21-23.
- (2008). *Nitrogen mineralization rate of animal manure across productivity level management zones*. In Proceedings of the Great Plains Soil Fertility Meetings, March 4th- 5th, Denver, CO.
- (2008). *Nitrogen Mineralization Rate of Animal Manure across Productivity Level Management Zones*. In Proceedings of the 9th International Conference on Precision Agriculture, Denver, CO July 21-23.
- (2008). *Precision Equipment comes into its own*. Capital Press, Oct.
- (2008). *Precision Farming Advances Agricultural Sustainability*. Vector1 Media <http://vector1media.com/article/feature/precision-farming-advances-agricultural-sustainability/> Feb 10, 2008.
- (2008). *Precision Manure Management Across Management Zones in the Western Great Plains of the USA*. In Abstracts of the Annual meetings of the American Society of Agronomy, Houston, TX Oct, 5th - 9th.
- (2008). *Precision Manure Management Strategies across Site Specific Management Zones for Enhancing Corn (Zea Mays L) Grain Yield*. In Proceedings of the 9th International Conference on Precision Agriculture, Denver, CO July 21-23.
- (2008). *Spatial and Temporal Distribution of Iris yellow spot virus and Thrips of Onion in Colorado*. In the Proceedings of the 9th International Conference on Precision Agriculture, Denver, CO July.
- (2008). *Spatial and Temporal Distribution of Thrips and IYSV of Onion in Colorado*. In the Proceedings of the National Association of Regional Councils meeting, Savannah, GA, Dec.
- (2008). *The Five R's of Precision*. Precision Pays, Nov.
- (2008). *Utilizing normalized difference vegetation indices (NDVI) and in-season crop and soil variables to estimate corn grain yield*. In the Proceeding of the 26th Annual Meetings of the Fluid Fertilizer Foundation in Scottsdale, AZ in Feb 2008.
- (2001). *Decision support for crop management using remote sensing*. Proceedings of World Congress of Computers in Agriculture and Natural Resources Mar 13-15th 2002 Iguacu Falls, Brazil.

## **Book Review**

- (2010). *Application of Adaptive Neuro-Fuzzy Inference System for study of relation between Normalized*

*Difference Vegetation Index, yield and soil color-based management zones in irrigated maize. Applications of Soft Computing in Agricultural Researches* (ed) VP Yakushev, H A Torbert, DA Kurtener Agrophysical Research Institute, St Petersburg, Russia.

(2010). *Application of tool for fuzzy multi attributive comparison of different N management strategies. Applications of Soft Computing in Agricultural Researches* (ed) VP Yakushev, H A Torbert, DA Kurtener Agrophysical Research Institute, St Petersburg, Russia.

(2010). *Spatial Variation and Site-specific Management Zones* (pp. 195-219). *Geo-statistical Applications in Precision Agriculture* (ed) M Oliver Springer Publishers, Netherlands.

(2008). *Understanding and Cleaning Yield Monitor Data (Book Chapter)*. In *Soil Science: A Step-by-step Analysis* S Logsdon (ed) Amer Soc Agron Madison WI USA.

## **PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS**

2011, "Active remote sensing for rapid evaluation of apparent nitrogen use efficiency in winter wheat (*Triticum aestivum* L.) genotypes. At the European Conference on Precision Agriculture, Prague, Czech Republic July 2011".

2011, "Active Sensor based Evaluation of Multiple Wheat genotypes Across Dryland and Irrigated Cropping Systems. At the Annual meetings of the American Society of Agronomy, San Antonio, TX. Oct 16-19 2011".

2011, "Advance GPS Applications in Production Agriculture. Presented at the Workshop on "Geo-Informatics Application in Agriculture" for National Agricultural Improvement Project, Indian Soil Survey Bureau, Nagpur, India Nov. 2011".

2011, "Capacity Building Workshop on Precision Farming Techniques on Managing Biotic and Abiotic Stress in Crop Plants. University of Agricultural Sciences, Raichur, India Dec 11-24th, 2011".

2011, "Comparison of two active remote canopy sensors to develop N fertilizer algorithms. At the European Conference on Precision Agriculture, Prague, Czech Republic July 2011".

2011, "Cutting Edge Research: Active remote sensing for rapid evaluation of apparent NUE in winter wheat genotypes. Presented at the Workshop on "Geo-Informatics Application in Agriculture" for National

Agricultural Improvement Project, Indian Soil Survey Bureau, Nagpur, India Nov. 2011".

2011, "Early detection of Nitrogen Deficiency in Corn using Fluorescence. In the Proceedings of the 2nd Global Workshop on Proximal Soil Sensing, Montreal, Canada. May 2011", peer-reviewed/refereed.

2011, "Food Security and Precision Agriculture. In a Symposium entitled "Locally-based adaptive management: impacts and challenges for feeding the world" at the Annual meetings of the American Society of Agronomy, San Antonio, TX. Oct 16-19."

2011, "Food Security and Precision Agriculture. Keynote presentation at the Annual Meetings of the Western Soil Science Society & Western Crop Science Society. Laramie, WY June 2011".

2011, "Future of Precision Agriculture. Saskatchewan Farm Show, Saskatoon, Saskatchewan, Canada. Jan 11, 2011".

2011, "Geographic Information Systems workshop. Presented to the 5th graders at Traut Core Knowledge Elementary School, Poudre School District, Fort Collins, CO Nov 14, 2011."

2011, "Global Food Security and Precision Agriculture. Keynote Speaker at the Sixth International Symposium on Intelligent Information Technology in Agriculture. Beijing, China. Oct 2011".

2011, "Hands-on Global Positioning Systems workshop. Presented to the 5th graders at Traut Core Knowledge Elementary School, Poudre School District, Fort Collins, CO Nov 4, 2011."

2011, "High resolution GPS-RTK Systems and Its Applications in Agriculture. Presented at the Workshop on "Geo-Informatics Application in Agriculture" for National Agricultural Improvement Project, Indian Soil Survey Bureau, Nagpur, India Nov. 2011".

2011, "In-season Precision Nutrient Management

Using Remote-Sensing. Field Day at  
Iliff, CO August 18, 2011."

2011, "International Science and Education  
Collaborations with India and China.  
Presented at the Earth Day Colloquium  
at CSU as a follow-up to the CSU  
Delegation to India. April 2011."

2011, "Introduction to GIS and its applications  
in Agriculture. Presented at the  
Workshop on "Geo-Informatics Application  
in Agriculture" for National  
Agricultural Improvement Project, Indian  
Soil Survey Bureau, Nagpur, India Nov. 2011".

2011, "Khosla, R. 2011. Hands on Global  
Positioning Systems Unit. Guest lecture  
in SOCR 100 General Crop Production,  
Department of Soil & Crop Sciences,  
Colorado State University, Sept, 2011.  
[FOUR TIMES]".

2011, "Khosla, R. 2011. Overview of Precision  
Agriculture. Guest lecture in A300 Issue  
in Agriculture, Department of  
Agricultural Education, Colorado State  
University, Oct 2011".

2011, "Khosla, R. 2011. Overview of Precision  
Agriculture. Guest lecture in SOCR 100  
General Crop Production, Department of  
Soil & Crop Sciences, Colorado State  
University, Sept 2011."

2011, "Precision Agriculture and Resource  
Management for Livelihood Security in  
Small Scale Agricultural Systems.  
Keynote Speaker at the First Indo-US  
Bilateral Workshop on Precision  
Agriculture. Punjab Agricultural  
university, Ludhiana, Punjab, India. Feb  
2011."

2011, "Precision Agriculture for small Scale  
Agricultural Systems. Keynote  
Presentation at the 4th Asian Conference  
on Precision Agriculture, Obihiro,  
Japan. July-2011".

2011, "Precision Agriculture for small Scale  
Agricultural Systems. Keynote Speaker at  
the European Conference on Precision

Agriculture at Prague, Czech Republic.  
July 2011".

2011, "Precision Agriculture in the Future:  
Importance and Applications.  
Agricultural Technology Seminar,  
Saskatoon, Saskatchewan, Canada. Jan 11,  
2011".

2011, "Precision Agriculture, Natural Resource  
Management and Food Security. Invited  
Presentation at the Central Institute  
for Cotton Research, Nagpur, India Nov,  
2011".

2011, "Precision Manure Management Conservation  
practices: Surface Soil Quality and  
Environmental Impact. At the Annual  
meetings of the American Society of  
Agronomy, San Antonio, TX. Oct 16-19 2011".

2011, "Precision Manure Management Conservation  
practices: Surface Soil Quality and  
Environmental Impact. At the Annual  
meetings of the Soil and Water  
Conservation Society, Washington, D.C.  
July 2011".

2011, "Precision Nutrient Management and Crop  
Sensing. Invited Speaker at the 2nd  
International Plant Phenotyping  
Symposium 2011. Julich, Germany,  
September, 2011".

2011, "Precision Nutrient Management:  
Challenges and Opportunities in a Flat  
World. Opening Keynote Speaker at the  
International Symposium on Sensing in  
Agriculture in Memory of Dahlia  
Greidinger (Agri Sensing Feb. 2011)".

2011, "Principles and Concepts of Global  
Positioning Systems. Presented at the  
Workshop on "Geo-Informatics Application  
in Agriculture" for National  
Agricultural Improvement Project, Indian  
Soil Survey Bureau, Nagpur, India Nov. 2011".

2011, "Quantifying Spatial and Temporal  
Variability in Soil and Crop  
Characteristics. Presented at the  
Workshop on "Geo-Informatics Application  
in Agriculture" for National

Agricultural Improvement Project, Indian Soil Survey Bureau, Nagpur, India Nov. 2011".

2011, "Soil Formation. Presentation to 4th graders at the Traut Core Knowledge Elementary School, Poudre School District, Fort Collins, CO. April 2011."

2011, "Spatial Nutrient Management. 14th Annual Precision Agriculture Technology Conference January 20 & 21, 2011 Salina, KS".

2011, "W1009 Report on Colorado Projects. Presented at the W-1009 regional meetings in Honolulu, HI June 2011."

2011, "What is Precision Agriculture and how could it be useful for African Countries? Presentation to Visiting Howard Hughes Fellows from 20 African countries. CSU International Programs, Lory Student Center. Feb 7th, 2011".

2011, "'Managing the Planet' Cause of Conflict from Food Security to Environmental Challenges. Cafe Panel Organized by School of Global Environmental Sustainability, Avagadro's Number, Fort Collins, CO April 2011."

2010, "Khosla, R. 2010. Food Security and Precision Agriculture. Guest lecture in SoGES 192, School of Global Environmental Sustainability, Colorado State University, Nov. 9, 2010."

2010, "Khosla, R. 2010. Hands on Global Positioning Systems Unit. Guest lecture in SOCR 100 General Crop Production, Department of Soil & Crop Sciences, Colorado State University, Sept, 2010. [FOUR TIMES]".

2010, "Khosla, R. 2010. Overview of Precision Agriculture. Guest lecture in A300 Issue in Agriculture, Department of Agricultural Education, Colorado State University, Oct 12, 2010."

2010, "Khosla, R. 2010. Overview of Precision Agriculture. Guest lecture in SOCR 100 General Crop Production, Department of Soil & Crop Sciences, Colorado State

University, Sept 8, 2010."

2010, "Khosla, R. 2010. Overview of Precision Agriculture. Guest lecture in SOCR 351 Soil Fertility Management, Department of Soil & Crop Sciences, Colorado State University, Oct 19, 2010."

2010, "Khosla, R. 2010. Precision Agriculture and Resource Management for Livelihood Security in Small Agricultural Systems. The Annual Meetings of Indian Society of Agronomy, Bangalore, India. Dec 2010."

2010, "Khosla, R. 2010. Precision Agriculture for Small Scale Agricultural Systems. University of Agricultural Sciences Seminar, UAS-Raichur, December, 2010."

2010, "Khosla, R. 2010. Precision Agriculture for Small-Scale Intensive Farming. The Inaugural Meeting of the International Center of Agro-Informatics for Sustainable Agriculture (ICASD), Beijing, China. September 2010."

2010, "Khosla, R. 2010. Precision Agriculture in the Future: Importance and Applications. University of Minnesota Agronomy / Agroecology Symposium, St. Paul, MN February, 2010."

2010, "Khosla, R. 2010. Precision Agriculture: Auto-Guidance and Precision Nutrient Management. Rocky Mountain Agribusiness Association Meetings, Denver, CO. January 2010."

2010, "Khosla, R. 2010. Precision Agriculture: Auto-Guidance and Precision Nutrient Management. Southern Rocky Mountain Agricultural Conference and Trade Fair, Monte-Vista, CO. February 2010."

2010, "Khosla, R. 2010. Precision Agriculture: Challenges and Opportunities in a Flat World. Advanced Studies Program Summer Colloquium. National Center for Atmospheric Research, Boulder, CO. August, 2010."

2010, "Khosla, R. 2010. Precision Agriculture: Challenges and Opportunities in a Flat



World. The 19th  
World Congress of Soil Science,  
Brisbane, Australia, August 2010.", peer-reviewed/refereed.

2010, "Khosla, R. 2010. Precision Agriculture:  
Challenges and Opportunities. College of  
Agricultural Sciences Seminar, King Saud  
University, Riyadh, Saudi Arabia. May, 2010".

2010, "Khosla, R. 2010. Precision Agriculture: An  
Overview, Principles and Concepts.  
Presented to the Visiting Indian  
Delegation from Southern India,  
representing Rotary Club. Fort Collins,  
CO Sept 28, 2010."

2010, "Khosla, R. 2010. Precision Application  
Techniques. Annual Meeting of the  
Natural Resources Conservation Services  
and Soil and Water Conservation Society  
Colorado Chapter Technical Conference.  
Colorado Springs, CO. November, 2010."

2010, "Khosla, R. 2010. Precision Manure  
Management. Nebraska Agricultural  
Technology Association Annual Meetings,  
Grand Island, NE January 2010."

2010, "Khosla, R. 2010. Precision Nutrient  
Management and Site Specific Management  
Zones. Monsanto Agricultural Forum, St.  
Louis, MO February 2010."

2010, "Khosla, R. 2010. Precision Nutrient  
Management and Site Specific Management  
Zones. Nebraska Agricultural Technology  
Association Annual Meeting, Grand  
Island, NE. January 2010".

2010, "Khosla, R. 2010. Precision Nutrient  
Management in a Flat World: Challenges  
and Opportunities. Great Plains Soil  
Fertility Meeting, Denver, CO March 2010."

2010, "Khosla, R. 2010. Precision Nutrient  
Management Via Management  
Zones. Viterra Advanced Crop Advisory  
Meeting, Regina, Saskatchewan, Canada,  
March, 2010."

2010, "Khosla, R. 2010. Public Speaking Techniques.  
Guest lecture in SOCR 675 Presentation  
for Scientific Audience, Department of

Soil & Crop Sciences, Colorado State University, Oct 1, 2010."

2010, "Khosla, R. and M.E. Moshia. 2010. Precision Manure Management: It matters where you put your manure. Annual meetings of the Western Society of Soil Science, Las Vegas, NV, June 2010."

2010, "Khosla, R. Precision Agriculture: An Overview, Principles and Concepts. Presented to the Visiting Chinese Delegation from North Western University of Agriculture and Forestry. Fort Collins, CO June 23, 2010."

2010, "Khosla, R., D. Shaner, M. Stromberger, B. Bosley, A. Helm. 2010. Spatial Distribution of Enhanced Atrazine Degradation Across North Eastern Colorado: A Survey. Annual meetings of the Western Weed Science Society of America, Big Island, HI, March, 2010."

2010, "Khosla, R., T. Shaver, D.G. Westfall. 2010. Nitrogen and Water Management across Site-Specific Management Zones using Active Remote Sensing. Fluid Fertilizer Foundation Annual Meetings, Scottsdale, AZ. February, 2010."

2010, "Krueger, E.D., D.A. Kurtener, V.P. Yakishev, and R.N. Ermakov, and R. Khosla. 2010. Evaluation of Different N Management Strategies Using A Tool For Fuzzy Multi Attributive Comparison Of Alternatives. In Irrigated Maize. The 10th International Conference on Precision Agriculture, Denver, CO. July 2010."

2010, "Miao, Y., C. Qiang, Z. Cui, F. Li, T. H. Dao, R. Khosla, and X. Chen. 2010. Quantifying Spatial Variability of Indigenous Nitrogen Supply for Precision Nitrogen Management in North China Plain. The 10th International Conference on Precision Agriculture, Denver, CO."

2010, "Moshia, M.E., R. Khosla, D.G. Westfall, J. Davis, and R. Reich. 2010. Precision Manure Management Strategies Site Specific Management Zones for Enhancing

Corn Grain Yield. Annual meetings of the American Society of Agronomy, Long Beach, CA. Nov., 1-5th."

2010, "Moshia, M.E., R. Khosla, J. Davis, and D.G. Westfall. 2010. Precision Manure Management: It matters where you put your manure. The 10th International Conference on Precision Agriculture, Denver, CO."

2010, "Shaner, D., R. Khosla, and M. Stromberger. 2010. How rapidly does enhanced atrazine degradation develop? Annual meetings of the Weed Science Society of America, Denver, CO."

2010, "Shaner, D., R. Khosla, and M. E. Stromberger. 2010. Spatial and Temporal Changes in Atrazine Degradation Rates in Soil. The 10th International Conference on Precision Agriculture, Denver, CO. July 2010."

2010, "Shaver, T., R. Khosla, D.G. Westfall. 2010. Development Of A Nitrogen Requirement Algorithm Using Ground-based Active Remote Sensors. In Irrigated Maize. The 10th International Conference on Precision Agriculture, Denver, CO. July 2010"

2010, "Stromberger, M.E., R. Khosla, and D. Shaner. 2010. Spatio-Temporal Analysis of Atrazine Degradation And Associate Attributes In Eastern Colorado Soils. The 10th International Conference on Precision Agriculture, Denver, CO. July 2010."

**TEACHING:**

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u>Cr. Hrs.</u>	<u>Enrollment</u>
2016	Spring	SOCR177 - Applied Information Technology in Agriculture	1	13
2016	Spring	SOCR699 - Thesis	18	7
2015	Fall	SOCR377 - Geographic Information Systems in Agriculture	3	12
2015	Fall	SOCR377 - Geographic Information Systems in Agriculture - Lab	0	12
2015	Fall	SOCR699 - Thesis	18	11
2015	Spring	SOCR177 - Applied Information Technology in Agriculture	1	22
2015	Spring	SOCR784 - Supervised College Teaching	18	2
2015	Spring	SOCR699 - Thesis	18	14

2014	Fall	SOCR377 - Geographic Information Systems in Agriculture	3	15
2014	Fall	SOCR377 - Geographic Information Systems in Agriculture - Lab	0	15
2014	Fall	SOCR795 - Independent Study	18	1
2014	Fall	SOCR577 - Principles/Components: Precision Agriculture	3	2
2014	Fall	SOCR577 - Principles/Components: Precision Agriculture - Lab	0	2
2014	Fall	SOCR699 - Thesis	18	9
2014	Spring	SOCR177 - Applied Information Technology in Agriculture	1	8
2013	Fall	SOCR377 - Geographic Information Systems in Agriculture	3	18
2013	Fall	SOCR377 - Geographic Information Systems in Agriculture - Lab	0	18
2013	Fall	SOCR377 - GIS in Agriculture	3	18
2013	Fall	SOCR577 - Principles and Components of Precision Agriculture	3	6
2013	Fall	SOCR577 - Principles/Components: Precision Agriculture	3	4
2013	Fall	SOCR577 - Principles/Components: Precision Agriculture - Lab	0	4
2013	Spring	SOCR699 - Thesis	18	6
2012	Spring	SOCR177 - Applied Information Technology in Agriculture	1	16
2012	Spring	SOCR495 - Independent Study	18	5
2012	Spring	SOCR486 - Practicum	4	5
2012	Spring	SOCR699 - Thesis	18	11
2011	Fall	SOCR377 - Geographic Information Systems in Agriculture	3	15
2011	Fall	SOCR377 - Geographic Information Systems in Agriculture -Lab	0	15
2011	Fall	SOCR487 - Internship	12	15
2011	Fall	SOCR577 - Principles/Components: Precision Agriculture	3	5
2011	Fall	SOCR577 - Principles/Components: Precision Agriculture - Lab	0	5
2011	Fall	SOCR699 - Thesis	18	9
2011	Spring	SOCR177 - Applied Information Technology in Agriculture	1	11
2010	Fall	SOCR377 - Geographic Information Systems in Agriculture	3	12
2010	Fall	SOCR377 - Geographic Information Systems in Agriculture -Lab	0	12
2010	Fall	SOCR577 - Principles/Components: Precision Agriculture	3	5
2010	Fall	SOCR577 - Principles/Components: Precision Agriculture - Lab	0	5
2010	Fall	SOCR699 - Thesis	18	9
2010	Spring	SOCR177 - Applied Information Technology in Agriculture	1	18
2010	Spring	SOCR699 - Thesis	18	10
2009	Fall	SOCR377 - Geographic Information Systems in Agriculture	3	12
2009	Fall	SOCR377 - Geographic Information Systems in Agriculture -Lab	0	12
2009	Fall	SOCR495 - Independent Study	18	1
2009	Fall	SOCR486 - Practicum	4	2
2009	Fall	SOCR577 - Principles/Components: Precision Agriculture	3	2
2009	Fall	SOCR577 - Principles/Components: Precision Agriculture - Lab	0	2
2009	Spring	SOCR177 - Applied Information Technology in Agriculture	1	9
2009	Spring	SOCR495 - Independent Study	18	4
2008	Fall	SOCR377 - Geographic Information Systems in Agriculture	3	9
2008	Fall	SOCR377 - Geographic Information Systems in Agriculture	0	9

		-Lab		
2008	Fall	CIVE377 - Geographic Information Systems in Agriculture.	3	0
2008	Fall	SOCR577 - Principles/Components: Precision Agriculture	3	1
2008	Fall	SOCR577 - Principles/Components: Precision Agriculture - Lab	0	1
2008	Spring	SOCR799 - Dissertation	18	14
2007	Fall	SOCR799 - Dissertation	18	12
2007	Fall	CIVE377 - Geographic Information Systems in Agriculture	3	1
2007	Fall	SOCR377 - Geographic Information Systems in Agriculture	3	12
2007	Fall	SOCR377 - Geographic Information Systems in Agriculture - Lab	0	12
2007	Fall	CIVE377 - Geographic Information Systems in Agriculture-Lab	0	1
2007	Fall	SOCR577 - Principles/Components: Precision Agriculture	3	7
2007	Fall	SOCR577 - Principles/Components: Precision Agriculture - Lab	0	7

### Guest Lectures:

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u># of Guest Lectures</u>	<u>Delivery Mode</u>
2015	Fall	ECOL - Ecology	1	Face to Face
2015	Fall	SOCR - Introduction to Crops	1	Face to Face

### EXTENSION/ENGAGEMENT ACTIVITIES/ACCOMPLISHMENTS

#### Field Day

CSU Water Tour. Fort Collins, CO. Number of times program was made: 1. Total number of participants: 25. Percent Responsible: 100%. 2012.

#### Presentation

Precision Agriculture. Adult, Denver, CO. Number of times program was made: 1. Total number of participants: 200. Percent Responsible: 100%. 1st Quarter 2015.

Precision Agriculture. Adult, Denver, CO. Number of times program was made: 1. Total number of participants: 300. Percent Responsible: 100%. 1st Quarter 2015.

Precision Agriculture. Adult, Minneapolis, MN. Number of times program was made: 1. Total number of participants: 500. Percent Responsible: 100%. 1st Quarter 2015.

Precision Agriculture. Adult, Johnston, IA. Number of times program was made: 1. Total number of participants: 500. Percent Responsible: 100%. 1st Quarter 2015.

Precision Agriculture. Adult, Madison, WI. Number of times program was made: 1. Total number of participants: 1500. Percent Responsible: 100%. 1st Quarter 2015.

Precision Agriculture. Adult, St. Paul, MN. Number of times program was made: 1. Total number of participants: 250. Percent Responsible: 100%. 1st Quarter 2015.

Precision Agriculture. Adult, Raleigh, NC. Number of times program was made: 1. Total number of participants: 75. Percent Responsible: 100%. 3rd Quarter 2015.

Global Applications of Precision Agriculture. Fredericton, NB, Canada. Number of times program was made: 1. Total number of participants: 100. Percent Responsible: 100%. 2012.

Precision Agriculture. Jamestown, ND. Number of times program was made: 1. Total number of participants: 200. Percent Responsible: 100%. 2012.

Precision Agriculture and Food Security. Lieda, Spain. Number of times program was made: 1. Total number of participants: 350. Percent Responsible: 100%. 2012.

Precision Agriculture and Food Security. Jeju, Korea. Number of times program was made: 1. Total number of participants: 400. Percent Responsible: 100%. 2012.

Precision Agriculture and Global Applications. Xan Yiang, Hubei, China. Number of times program was made: 1. Total number of participants: 200. Percent Responsible: 100%. 2012.

Precision Agriculture and Global Food Security. Washington DC, DC. Number of times program was made: 1. Total number of participants: 50. Percent Responsible: 100%. 2012.

Precision Agriculture and Global Food Security. Blacksburg, VA. Number of times program was made: 1. Total number of participants: 75. Percent Responsible: 100%. 2012.

Precision Agriculture and its Applications. Grand Falls, NB, Canada. Number of times program was made: 1. Total number of participants: 150. Percent Responsible: 100%. 2012.

Precision Agriculture: History, Academia and Future. Wuhan, China. Number of times program was made: 1. Total number of participants: 700. Percent Responsible: 100%. 2012.

Precision Agriculture: Moving into the Future. Greeley, CO. Number of times program was made: 1. Total number of participants: 125. Percent Responsible: 100%. 2012.

Spatial Variability: Unravelling the Mystery. Calgary, Canada. Number of times program was made: 1. Total number of participants: 400. Percent Responsible: 100%. 2012.

Spatial Variability: Unravelling the Mystery. Springfield, IL. Number of times program was made: 1. Total number of participants: 1000. Percent Responsible: 100%. 2012.

### **Workshop**

Congressional Hearing on Precision Agriculture. Washington DC, DC. Number of times program was made: 1. Total number of participants: 75. Percent Responsible: 100%. 1st Quarter 2015.

Precision Agriculture. Adult, Lamar. Total number of participants: 75. Percent Responsible: 100%. 1st Quarter 2015.

Precision Agriculture. Adult, Lexington, KY. Number of times program was made: 1. Total number of participants: 75. Percent Responsible: 100%. 1st Quarter 2015.

Precision Nutrient and Water Management. Adult, London, ON. Total number of participants: 1000. Percent Responsible: 100%. 1st Quarter 2015.

### **COMMITTEES**

INTO Director Search Committee, (January 2015 - Present).

International Operations Committee, (November 2013 - Present).

(2011).

(2011).

(2011).

(2011).

(2010).

(2010).

(2010).

(2010).

(2010).

ARDEC Advisory Committee, (January 2014 - Present).

(2011).

(2011).

(2011).

(2011).

(2010).

(2010).

(2010).

(2010).

(2010).

Resident Instruction Panel, (January 2013 - Present).

Extension Panel, (September 1999 - Present).

(2011).

(2011).

(2011).

(2011).

(2010).

(2010).

(2010).

(2010).

(2010).

**PROFESSIONAL AFFILIATIONS AND ACTIVITIES**

International Society of Precision Agriculture. (2010 - Present).

Crop Science Society of America. (2005 - Present).

Western Society of Soil Science. (2000 - Present).

Epsilon Sigma Phi. (1999 - Present).

American Association for Advancement of Science. (1997 - Present).

Sigm-Xi The Scientific Research Society. (1997 - Present).

Gamma Sigma Delta. (1995 - Present).

Soil & Water Conservation Society. (1995 - Present).

American Society of Agronomy. (1993 - Present).

Soil Science Society of America. (1993 - Present).

Association of Agricultural Scientist of Indian Origin. (2006 - 2008).

Gamma Sigma Delta Colorado Chapter. (2005 - 2006).

Kansas State University Media Services. (October 11, 2015).

National Public Radio. (August 12, 2015).

Committee Member, Fourth International Conference on Agronomy. (January 2015 - Present).

Committee Member, International Program Committee for AgriControl Conference 2016. (January 2015 - Present).

Reviewer, Grant Proposal, Russian Federation of Science. (January 2015 - Present).

Committee Member, Workshop on Robotics in Agriculture. (January 2015 - Present).

Committee Member, Award Committee American Society of Agronomy. (January 2014 - Present).

European Conference on Precision Agriculture. (2012 - Present).

Committee Chair, International Conference on Precision Agriculture. (2012 - Present).

Promotion & Tenure Committee, University of Putra, Malaysia. (2012 - Present).

Promotion & Tenure Committee, Volcani Research Center, Israel. (2012 - Present).

ACPA, Sapporo, CO. (2011 - Present).

Member, ASA Award Committee: A445 Kingenta Agricultural Science Award. (2011 - Present).

ASA-CSSA-SSSA, San Antonio, TX. (2011 - Present).



CSU Earth Day Colloquium, Fort Collins, CO. (2011 - Present).

Dahlia Greidinger, Technion University, Haifa, Israel, Haifa, CO. (2011 - Present).

ECPA, Prague, CO. (2011 - Present).

European Conferene on Precision Agriculture. (2011 - Present).

Member, European Conferene on Precision Agriculture - Spain. (2011 - Present).

Member, FRQNT Canada. (2011 - Present).

Member, Great Plains Soil fertility Conference Planning Committee, Denver, Colorado. (2011 - Present).

ICAR-Cotton Research Center, Nagpur, CO. (2011 - Present).

Indian Bureau of Soil Survey and Landscape Management, Nagpur, CO. (2011 - Present).

Indo-US Science and Technology Forum, Ludhiana. (2011 - Present).

Member, International Journal of Precision Agriculture. (2011 - Present).

IPPN, Julich, CO. (2011 - Present).

IUSS, Montreal, CO. (2011 - Present).

KARA- Kansas, Salina, KS. (2011 - Present).

NERCITA - CHINA, Beijing, CO. (2011 - Present).

Reviewer, Ad Hoc Reviewer, SBIR-USDA. (2011 - Present).

Second Global Workshop On Proximal Sensing. (2011 - Present).

Member, Second Global Workshop On Proximal Sensing. (2011 - Present).

SoGES, Fort Collins, CO. (2011 - Present).

The Chicago Council on Global Affairs, Washington D.C., DC. (2011 - Present).

Trade Commission, Saskatchewan, Saskatoon, CO. (2011 - Present).

University of Agricultural Sciences, Raichur, CO. (2011 - Present).

Member, USDA-NIFA-ISE Program. (2011 - Present).

W-1009 regional meetings, Honolulu, HI. (2011 - Present).

W-1009 Western Region Committee on Sensors and Automation. (2011 - Present).

Western Canada Farm Show, Saskatoon, CO. (2011 - Present).

WSSA & WCSSA, Laramie, WY. (2011 - Present).

American Society of Agronomy, Long Beach, CA. (2010 - Present).

Reviewer, Ad Hoc Reviewer, BARD: Binational Agricultural Research and Development Fund. (2010 - Present).

Colorado State University Extension, Monte-Vista, CO. (2010 - Present).

Colorado State University ISTec, Fort Collins, CO. (2010 - Present).

Colorado State University Soil & Crop Sciences, Fort Collins, CO. (2010 - Present).

Member, European Conference of Precision Agriculture - Czech republic. (2010 - Present).

Fluid Fertilizer Foundation, Scottsdale, AZ. (2010 - Present).

Indian Society of Agronomy, Bangalore. (2010 - Present).

International Center for Agroinformatics for Sustainable Development, Beijing. (2010 - Present).

International Conference on Precision Agriculture, Denver, CO. (2010 - Present).

International J. of Precision Agriculture. (2010 - Present).

Member, International J. of Precision Agriculture. (2010 - Present).

International Plant Nutrition Institute, Denver, CO. (2010 - Present).

Member, International Society of Precision Agriculture. (2010 - Present).

International Union of Soil Science, Brisbane, Australia. (2010 - Present).

King Saud University, Riyadh. (2010 - Present).

Monsanto Inc., St. Louis, MO. (2010 - Present).

National Center of Atmospheric Research, Boulder, CO. (2010 - Present).

NCERA-180, Louisville, KY. (2010 - Present).

Nebraska Agricultural Engineering & Technology Association, Grand Island, NE. (2010 - Present).

NRCS - Soil and Water Conservation Society, Colorado Springs, CO. (2010 - Present).

Reviewer, Ad Hoc Reviewer, NSF Partnership for Innovation Program. (2010 - Present).

Rocky Mountain Agribusiness Association, Denver, CO. (2010 - Present).

School of Global Environmental Sustainability, Fort Collins, CO. (2010 - Present).

Soil Science Society of America. (2010 - Present).

University of Minnesota, St. Paul, MN. (2010 - Present).

Member, USAID-MERC Program Middle East Research Consortium. (2010 - Present).

USDA-ARS External Reviewer. (2010 - Present).

USDA-ARS-Water Management Unit, Fort Collins, CO. (2010 - Present).

Reviewer, Ad Hoc Reviewer, USDA-Western SARE. (2010 - Present).

Viterra Inc., Regina. (2010 - Present).

Western Society of Soil Science, Las Vegas, NV. (2010 - Present).

Western Society of Weed Sciences, Kona, HI. (2010 - Present).

Member, Crop Science Society of America. (2005 - Present).

Member, Resident Instruction Panel. (2005 - Present).

Member, College of Agricultural Sciences GIS Committee. (2000 - Present).

NCERA-180 Regional Committee. (2000 - Present).

Member, Western Society of Soil Science. (2000 - Present).

Member, Department Extension Panel. (1999 - Present).

Member, Epsilon Sigma Phi. (1999 - Present).

Member, American Association for Advancement of Science. (1997 - Present).

Member, Sigma-Xi The Scientific Research Society. (1997 - Present).

Member, Gamma Sigma Delta. (1995 - Present).

Member, Soil & Water Conservation Society. (1995 - Present).

Member, American Society of Agronomy. (1993 - Present).

Member, Soil Science Society of America. (1993 - Present).

National Academy of Sciences, Jefferson Science Fellow. (2012 - 2018).

Member, American Society of Agronomy Fellows Committee, Madison, WI. (2014 - 2016).

Chairperson, ASA A445 Kingenta Agricultural Science Award Committee, Madison, WI. (2014 - 2015).

Chairperson, SSSA S492 Lloyd R. Frederick Soil Teaching Travel Study Award Committee, Madison, WI. (2014 - 2015).

International Society of Precision Agriculture. (2012 - 2014).

International Society of Precision Agriculture. (2010 - 2012).

Member, ASA Agronomic Service Awards Committee 2009-2011. (2009 - 2011).

Committee Chair, Centennial Celebration Committee. (2009 - 2010).

Editor, Associate Editor, Soil Science Society of America. (2004 - 2010).

Western Society of Soil Science. (2008 - 2009).

Western Society of Soil Science. (2007 - 2008).

Association of Agricultural Scientist of Indian Origin. (2006 - 2008).

Gamma Sigma Delta Colorado Chapter. (2005 - 2006).

### **OTHER ACTIVITIES/ACCOMPLISHMENTS – SERVICE/OUTREACH**

Board Member, US Presidential Advisory Board on Positioning, Navigation and Timing (GPS), Washington DC, DC. (March 2011 - Present).

Board of Directors of a Company, US Presidential Advisory Committee on Positioning, Navigation and Timing. (2011 - Present).

Board of Advisors of a Company, Centroid: Geo-Spatial Advisory Committee. (2010 - Present).

Review Panel Member, Eurasia Expert Review Panel. (2013).

Review Panel Member, National Academy of Sciences PEER for USAID-NSF International programs,, Washington DC, DC. (2013).

Review Panel Member, USDA-NIFA Food Security Review Panel, Washington DC, DC. (2013).

Jefferson Science Fellow, National Academy of Sciences, Washington DC, DC. (July 2012 - July 2013).

Poudre School District.

Poudre School District.

Poudre School District.

Poudre School District.

Poudre School District.

Poudre School District. (2012 - Present).

Poudre School District. (2011 - Present).

Poudre School District. (2011 - Present).

Poudre School District. (2011 - Present).

Poudre School District. (2010 - Present).

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