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Associate Professor

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EDUCATION

Ph.D., Soil Science. Lincoln University, Canterbury, New Zealand.

M.Sc., Soil Science. University of Agricultural Sciences, Bangalore, India.

B.Sc., Agricultural Sciences. University of Agricultural Sciences, Bangalore, India.

EXPERIENCE

Associate Professor, 09/2012-Present. Texas A&M AgriLife Research and Extension Center at El Paso, Dept. Soil & Crop Sciences, Texas A&M University System. Water Resources and Salinity Management.

Assistant Professor, 03/2006-08/2012. Texas A&M AgriLife Research and Extension Center at El Paso, Dept. Soil & Crop Sciences, Texas A&M University System. Research on water resources and salinity management in the Far West Texas.

Post-Doctoral Research Scientist, 01/2003-03/2006. Department of Renewable Resources, University of Wyoming, Laramie, Wyoming. Conducted research on management of coalbed natural gas (CBNG) water with elevated salinity in the Powder River Basin (PRB) covering parts of Wyoming and soil carbon sequestration in different ecosystems (rangelands, forest, and reclaimed coal mine lands).

Research Associate, 05/1993-01/2003. Tata Energy Research Institute (TERI), New Delhi, India. Carried out multidisciplinary research related to improved agricultural practices, natural resources management at a watershed scale, evaluation of reclamation practices in open cast coal and lignite mines, identification and management of problematic soils, and climate change impacts on soil-water resources.

Program Overview

Dr. Ganjegunte's research program specializes in water resources and salinity management. Current projects include developing alternative water sources (industrial and urban wastewater, saline groundwater and graywater) for beneficial uses including irrigation, evaluation of electromagnetic induction (EMI) for rapid assessment of salinity at a high spatial resolution, on-farm water conservation, and soil salinity management. To date his program has trained 4 technicians and 22 part-time undergraduate students. His program has established strong collaborations with local growers, water managers and fellow researchers within and outside West Texas region as well as international institutions

Significant 5 Year Accomplishment

Research on salinity management using an anionic polymer indicates reductions in salinity and sodicity in the effective root zone of pecans. As a result, the annual pecan nut yield in polymer treated fields increased by 43% compared to that in untreated control. Data from studies evaluating the Electro-Magnetic Induction (EMI) technique for salinity measurements indicate that the EMI method is at least 9 times faster, costs 88% less, and provides much higher resolution data than the

conventional method. Recently, EMI technique was successfully used to assist Congressman Beto O'Rourke (TX-16) in assessing root zone soil salinity in turf areas at Chamizal National Memorial. Research on beneficial uses of cooling tower reject water indicates that almost 1.1 billion gallons of industrial wastewater per year could potentially be used for beneficial agricultural irrigation purposes in El Paso County. Research results from improved irrigation scheduling using moisture sensors indicate a potential freshwater savings of 15,000 acre-feet per year in the El Paso Irrigation District.

SELECTED PUBLICATIONS

1. Enciso, J. Jifon, L. Ribera, S.D. Zapata, and **G.K. Ganjegunte**. 2015. "Yield, Water Use Efficiency and Economic Analysis of Energy Sorghum in South Texas Biomass and Bioenergy". Biomass and Bioenergy. 81:339–344.
2. Szykiewicz, A. D.M. Borrok, **G.K. Ganjegunte**, G. Skrzypek, L. Ma, M. Rearick, and G. Perkins. 2015. "Isotopic studies of the Upper and Middle Rio Grande. Part 2 - Salt loads and human impacts in south New Mexico and west Texas". Chemical Geology. 411:336–350
3. **Ganjegunte, G.K.**, Z. Sheng, and J.A. Clark. 2014. "Soil Salinity and Sodicity Appraisal by Electromagnetic Induction in Irrigated Cotton Soils". Land Degradation & Development. 25:228-235.
4. Sun, Y., G. Niu, P. Osuna, L. Zhao, **G. K. Ganjegunte**, G. Peterson, J.R. Peralta-Videa, and J. L. Gardea-Torresdey. 2014. "Variability in Salt Tolerance of Sorghum bicolor L". Agricultural Science. 2:9-21.
5. Johnston, C.R., G.F. Vance, and G.K. Ganjegunte. 2013. "Soil Property Changes Following Irrigation with CBNG Water: Role of Water Treatments, Soil Amendments, and Land Suitability". Land Degradation and Development. 24:350-362.
6. Sun, Y., G. Niu, P. Osuna, G. Ganjegunte, D. Auld , L. Zhao, J. Gardea-Torresdey, and J. Peralta. 2013. "Seedling emergence and Growth of *Ricinus communis* L. Cultivars Irrigated with Saline Solution". Industrial Crops and Products.49:75-80
7. **Ganjegunte, G.K.**, B. Leinauer, M. Schiavon, and M. Serena. 2013. "Using Electro-Magnetic Induction to Determine Soil Salinity and Sodicity in Turf Root Zones". Agronomy Journal. 105:836-844.
8. **Ganjegunte, G.K.**, Z. Sheng, and J.A. Clark. 2012. "Evaluating the Accuracy of Soil Water Sensors for Irrigation Scheduling to Conserve Freshwater." Applied Water Science. 2: 119-125.
9. **Ganjegunte, G.K.**, and R.J. Braun. 2011. "Delineating Salinity and Sodicity Distribution in Major Soil Series of El Paso, Texas using Electro-Magnetic Induction Technique." Soil Science. 176:441-447.
10. **Ganjegunte, G.K.**, Z. Sheng, and R. Braun. 2011. "Salinity Management Using an Anionic Polymer in a Pecan Field with Calcareous-Sodic Soil." Journal of Environmental Quality. 40:1314-1321.