

RESHAM THAPA

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RESEARCH INTERESTS

Soil fertility and nutrient management; Precision agriculture; Soil health, economic and environmental sustainability; Cropping systems; Greenhouse gases; Climate change; Modeling.

EDUCATION

- **M.S. in Soil Science** 2014-2016 May (Expected)
North Dakota State University (NDSU), Department of Soil Science, Fargo, ND, USA.
(GPA: 4.00/4.00).
- **B.S. in Agriculture** 2009-2013
Tamil Nadu Agricultural University (TNAU), Coimbatore, Tamil Nadu, India.
(B.Sc. Ag. 2009-13 Topper with OGPA: 9.42/10.00)

TOEFL score: 104 out of 120

GRE score: 321 out of 340, 3.5 in Analytical writing

RESEARCH EXPERIENCE

Graduate Research Assistant July 2016 - Present
University of Maryland, College Park, MD, USA.

Graduate Research Assistant 2014 – 2016
North Dakota State University, Fargo, ND, USA.
Thesis title: Spring wheat (*Triticum aestivum* L.) response to nitrogen loss management and sulfate-based soil salinity.

Research title 1: *Impact of urease and nitrification inhibitors and nitrogen application rate on nitrogen losses and nitrogen use efficiency under rainfed spring wheat.*

Objective:

- Evaluate the effectiveness of enhanced efficiency fertilizers on reducing all forms of N losses (ammonia volatilization, nitrous oxide emissions, and nitrate leaching);
- Assess the temporal soil N dynamics throughout the growing season; and
- Determine the effect of urease and nitrification inhibition on yield and quality of spring wheat under rainfed conditions in the Red River Valley.

Research title 2: *Response of spring wheat across the natural sulfate-based salinity gradient in North Dakota.*

Objective:

- Determine the threshold EC level at which the spring wheat growth (both above-ground and below-ground parameters) is negatively impacted under greenhouse and field conditions.
- Correlate root zone EC_{1:1} levels to the standard saturated paste extract EC_e levels.
- Correlate the salinity maps from EM sensors to the yield maps.

Other Activities:

- Guide and mentor numbers of summer lab and field assistants, and colleagues to perform various analyses and sampling as well as co-ordinate them to maintain laboratory and field plots.
- Demonstrated various sampling protocols including nitrous oxide gas sampling and analyses using gas chromatograph in class as well as to other personnel.
- Designed and conducted short-term laboratory incubation experiments to assess the effects of salinity and sodicity on nitrous oxide and carbon dioxide emissions.

Tamil Nadu Agricultural University, Coimbatore, India

2009-2013

Research title: *Tracking the microbial sources of contamination on carrot and coriander.*

Objective:

- Extract and count the microbes from carrot and coriander collected from various stages of marketing (producers field to market) to develop the possible pathways of microbial contamination.

Other activities:

- Participated in 15 days Agro Industrial Tie-Up Programme in SHRI VARALAKSHMI SAGO COMPANY (Sago/Sabudana Manufacturers and Exporters).
- Participated in 15 days training under DHARMAS NGO – observation of various Watershed structures and facilitation of 2 watershed management communities.
- Conducted Survey and Participatory Rural Appraisal (PRA) during Rural Agricultural Work Experience (RAWE) programme and facilitated various extension activities related to crop production, nutrient and disease management through Krishi Vigyan Kendra (KVK), Dharampuri, India.

JOURNAL PUBLICATIONS

- **Thapa R.**, A. Chatterjee, J.M.F. Johnson, and R. Awale. 2015. Stabilized nitrogen fertilizers and application rate influenced nitrogen losses under rainfed spring wheat. *Agron. J.* 107 (5): 1885-1894. doi:10.2134/agronj15.0081.
- Chatterjee A., N. R. Cattanach, R. Awale, and **R. Thapa**. 2016. Can we reduce rainfed maize (*zea mays l.*) nitrogenous fertilizer application rate with addition of nitrpyrin? *Commun. Soil Sci. Plant Ana.* 47(4): 527-532. doi: 10.1080/00103624.2016.1141927.
- Ghosh U., **R. Thapa**, T. DeSutter, Y. He., and A. Chatterjee. 2016. Saline-sodic soils: potential sources of N₂O and CO₂. *Pedosphere* (In Press).
- Thapa R., A. Chatterjee, A. Wick, and K. Butcher. 2016. Carbon dioxide and nitrous oxide emissions from naturally occurring sulfate-based saline soils at different moisture contents. *Pedosphere* (In Review).

THESIS CHAPTERS

- **Thapa R.**, A. Chatterjee, and R. Awale. 2016. Effect of enhanced efficiency fertilizers on nitrous oxide emissions and crop yields in a major cereal systems - a global meta-analysis. (In Review).
- **Thapa R.** and A. Chatterjee. 2016. Wheat production, nitrogen transformation and nitrogen losses as impacted by urease and nitrification inhibitors. (In Review).
- **Thapa R.**, A. Chatterjee, and A. Wick. 2016. Response of spring wheat to sulfate-based salinity stress differs between greenhouse and field conditions. (In Review).

NON-REFERRED PUBLICATIONS AND ABSTRACTS

- **Thapa R.**, A. Chatterjee, and N.R. Cattanach. 2015. Managing nitrogen losses for hard red spring wheat. *Crop and Soils.* 48 (5): 22-24. doi: 10.2134/cs2015-48-5-4.
- **Thapa R.**, A. Chatterjee, and J.M.F. Johnson. 2015. Impact of urease and nitrification inhibitors, as well as nitrogen application rate on nitrogen losses from rainfed spring wheat production system. SSSA Division: Soils & Environmental Quality. Nov. 18, 2015 oral presentation, ASA, CSSA and SSSA 2015 annual meeting, Minneapolis, MN. Available online: <https://scisoc.confex.com/scisoc/2015am/webprogram/Paper92504.html>
- Chatterjee, A., N. Cattanach, **R. Thapa**, M. Rakkar, K. Subedi, and U. Ghosh. 2015. Effect of commercial fertilizers and nutrient management products on sugarbeet yield and quality during 2015 growing season. 2015 Sugarbeet Research and Extension reports. P. 56. Sugarbeet Research and Education Board.
- Chatterjee, A., N. Cattanach, **R. Thapa**, and K. Subedi. 2015. Tile drainage depth and spacing effect on sugarbeet production. 2015 Sugarbeet Research and Extension reports. P. 71-72. Sugarbeet Research and Education Board.
- Chatterjee, A., N. Cattanach, **R. Thapa**, M. Rakkar, K. Subedi, and U. Ghosh. 2015. Can we solve sugarbeet sand-syndrome with cultivar selection, lime and starter applications? 2015 Sugarbeet Research and Extension reports. P. 57-58. Sugarbeet Research and Education Board.
- Chatterjee, A., N. Cattanach, R. Awale, **R. Thapa**, M. Rakkar, H. Rasmussen. 2014. Tile drainage depth and spacing effect on sugarbeet yield and soil nitrogen availability. Sugarbeet Research and Education Board.
- Chatterjee, A., N. Cattanach, R. Awale, **R. Thapa**, M. Rakkar, H. Rasmussen. 2014. Tile drainage depth and spacing effect on sugarbeet yield and soil nitrogen availability. Sugarbeet Research and Education Board. Available online at: <http://www.sbreb.org/research/soil/soil14/TileDrainageChatterjee.pdf>
- Chatterjee, A., N. Cattanach, **R. Thapa**, H. Rasmussen, M. Rakkar. 2014. Effect of commercial fertilizers and nutrient management products on sugarbeet yield and quality during 2014 growing season. Sugarbeet Research and Education Board. Available online: <http://www.sbreb.org/research/soil/soil14/EffectCommmercial%20FertilizersChatterjee.pdf>.

AWARDS, HONORARIES AND APPRECIATIONS

- **International Plant Nutrition Institute (IPNI) Graduate Scholar Award 2015: IPNI.**
- **2015 Environmental Quality Outstanding Graduate Student Award:** American Society of Agronomy Environmental Quality Section.
- **Roy A. Erickson Scholarship 2015.**
- **Graduate Research Assistantship 2014-2016:** Department of Soil Sciences, NDSU.
- **Nepal Aid Fund Scholarship 2009-2013:** Department of Agricultural Research and Education (DARE), Government of India (GOI).
- **Dr. Karnam Lokanadhan Award (Gold Medal):** Best B. Sc. (Ag.) student in agricultural economics subjects, TNAU.
- **ACCOSA Award for Academic Excellence (Silver Medal):** Outstanding performance in the B. Sc. (Ag.) Degree Course for 2012–2013, Agricultural College, Coimbatore Old Students Association (ACCOSA), TNAU.
- **Certificate of Excellence:** Best Insect Collection 2010-2011, Department of Entomology, TNAU.
- **Merit Certificate:** Outstanding performance in Insect Rearing (98 different species) in the course Crop and Stored Pests Management, Department of Entomology, TNAU.
- **Certificate of Merit:** First place in Elocution and Quiz Competition, Department of Agronomy, Directorate of Crop Management, TNAU.

SKILLS

- Office tools: Microsoft Word, Microsoft Excel, Microsoft PowerPoint.
- Software: SAS, R software, Meta-win, arcGIS.
- Field: Design and layout of plots, Soil and gas sampling, Lysimeter installation, Giddings' hydraulic probe.
- Laboratory: Gas chromatograph, Timberline ammonia analyzer, Colorimeter, Saturated paste extract, WinRHIZO root scanner.

PROFESSIONAL AFFILIATIONS

- **The Honor Society of Agriculture Gamma Sigma Delta** *2016-Present*
- **The Honor Society of Phi Kappa Phi.** *2015-Present*
- **CSO, Nepalese Student Association (NSA), NDSU.** *2014-Present*
- **Soil Science Society of America, Crop Science Society of America, American Society of Agronomy** *2014-Present*
- **Active Member, Eco gladiator, TNAU.** *2009-2013*
- **Active Member, National Service Scheme (NSS), TNAU.** *2012-2013*