

DR. BIJESH MAHARJAN

SOIL AND NUTRIENT MANAGEMENT SPECIALIST



PROFILE

Dr. Maharjan began working at the Panhandle Research and Extension Center in 2016. Dr. Maharjan's current research efforts focus on soil and fertilizer management to improve crop production efficiency for crops in western Nebraska such as corn, dry beans, winter wheat, sugar beets, proso millet, and field pea. The overall objective of his programs is to help develop and continue cost-effective, efficient, and sustainable production systems that optimize profitability, along with improving soil productivity, nutrient utilization, and variable rate nutrient application. Other research interests include greenhouse gas emissions, water quality, and in-season fertility management using remote-sensing technologies.

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Soil Health Gap

Dr. Maharjan's program coined the term "Soil Health Gap" and published a concept paper on it this year. It garnered a lot of interest among producers, researchers, NRCS, and industries alike. This concept will establish benchmark for soil health management efforts. Dr. Maharjan, in collaboration with USDA NRCS, anticipates developing Soil Health Gap Atlas Map for the State.

Reuse and Recycling of Industrial By-product (coal char)

The Western Sugar processing plant at Scottsbluff, NE produces a significant amount of high-carbon coal combustion residue (char) as a by-product. This char contains considerable amount of carbon in addition to many essential plant nutrients. After several years of cropland trials with char, char was applied to cattle pens last year. Manure from those char-added pens was scraped off this spring and applied to corn field to evaluate potential use of char in integrated cattle and cropping system.

Nebraska Dept of Ag Funded Potato Fertility Trial

Nitrogen (N) management for irrigated potato is important from both economic and environmental standpoints. Best practices of fertilizer N management improves recovery of N input, and subsequently, reduce nitrate leaching loss. In the environment where sustainability in agriculture is gaining more traction, potato growers should be prepared for an eventuality where end-consumers and/or water quality concerns increase and obligate regulatory authorities to take actions on sustainability in potato production. The objective of this proposed study is to evaluate effects of various N management strategies in potato tuber yields and in reducing nitrate leaching. Different N formulations, rates and timing are being evaluated in a potato field this year.

Other 2020 Research and Extension Highlights

- First Soil Health Workshop in the Panhandle was organized in Bridgeport in March 2020.
- Fertility trials for sugar beet, dry edible beans, field peas, industrial hemp, sunflower, and winter wheat.
- Evaluation of biological products for corn and soybean.