



School of Energy Resources  
Center for Carbon Capture  
and Conversion

Effects of

# Char & Amendments

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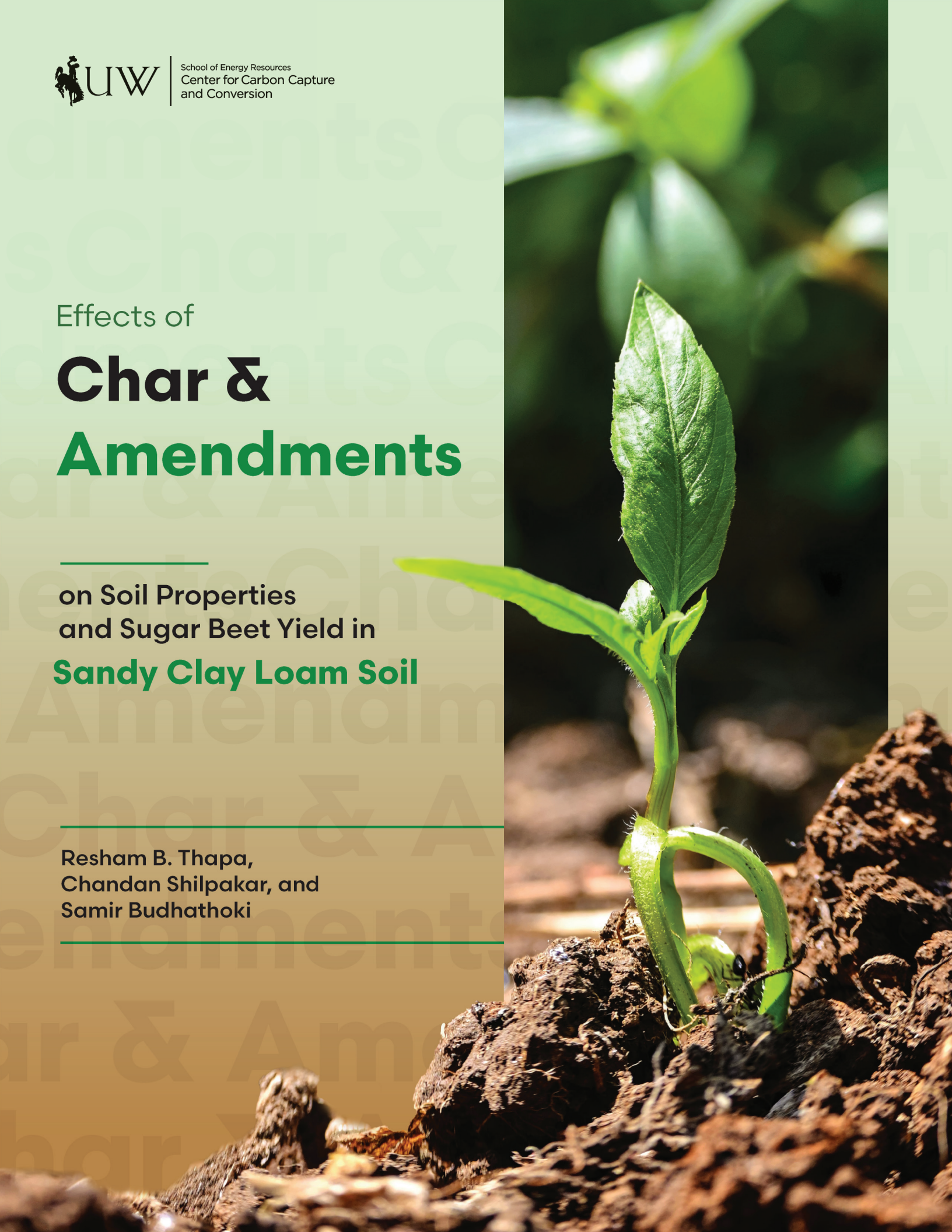
on Soil Properties  
and Sugar Beet Yield in

**Sandy Clay Loam Soil**

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# What This Study Is About

A two-year field study was conducted to evaluate the comparative impacts of coal char, biochar, inorganic fertilizer, and manure amendments on soil properties, plant growth indices, and soil and plant nutrient dynamics in a semiarid, sandy clay loam soil in Wyoming, USA.

## Why It Was Needed

Carbon-rich products such as biochar and coal char have emerged as promising soil amendments to improve soil properties and support plant growth in semiarid climates. The study was needed to better understand the complex, interactive effects of amendments and plant covariates on crop performance, using a multivariate approach to analyze these effects.

## What The Research Team Concluded

The study concluded that coal char has potential as an alternative soil amendment for semiarid, sandy clay loam soils, particularly when used in conjunction with appropriate nutrient management practices. Results show that combining coal char with fertilizer amendments enhances soil nutrient availability and plant tissue nutrient concentrations without adversely affecting soil pH, electrical conductivity, or cation exchange capacity.



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