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# Effect of urea on the geotechnical properties of soil

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## Abstract

Urea, a vital nitrogen source, is extensively employed as a fertilizer in the agriculturally rich Jaipur district of Rajasthan, India. This district, situated within the larger agricultural landscape of Rajasthan, serves as a key hub for crop cultivation, encompassing staples like wheat, rice, maize, and various vegetables. The accessibility of urea plays a pivotal role in sustaining crop productivity in this region.

However, the indiscriminate application of urea introduces challenges that warrant careful consideration. The overuse and mismanagement of urea in agricultural practices have the potential to trigger soil degradation and environmental contamination.

In response to these concerns, this research paper presents a comprehensive investigation into soil permeability. Soil samples were meticulously collected from the MNIT Jaipur campus, and a range of experiments were conducted to evaluate their permeability characteristics. These soil samples were purposefully tainted with varying concentrations of urea (2.5%, 5%, 10%, and 15% by dry weight), simulating real-world conditions prevalent in the Jaipur district. The study aims to shed light on the impact of urea contamination on soil permeability, providing valuable insights for sustainable agricultural practices in the region.

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