

## Soil Composition in Different Agricultural Crops Under Application of Swine Wastewater

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**Abstract :** This study evaluates the long-term effects of swine wastewater (SWW) on soil parameters in an agricultural area with years of crop cultivation. Three types of SWW (raw, after leaving the biodigester, and after the manure plant) were analyzed, both with and without mineral fertilization. The study found that the long-term use of SWW had significant effects on soil parameters. Principal Component Analysis (PCA) was used to summarize the data. The soil's calcium (Ca) and magnesium (Mg), and cation exchange capacity (CEC) levels were higher in soybeans compared to other crops and natural soil. Similarly, the treatment with 0m<sup>3</sup>.ha<sup>-1</sup> of pig manure and without mineral fertilization showed higher levels of these nutrients. In contrast, potassium (K) was found in greater quantities in oats, SWW from the biodigester, higher doses of manure, and mineral fertilization. The crops had a higher organic matter (OM) content compared to the natural soil, with corn and raw SWW showing the most significant increase.

**Keywords :** contamination, water research, biodigester, nutrients

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