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Risking the harvest: Vegetable farmers perspectives on heavy metal contamination from wastewater irrigation in Tamale Metropolis, Ghana

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Abstract

The paucity of empirical studies on vegetable farmers perception of heavy metal contamination is striking, especially given the growing concerns about food safety and environmental conservation. This study bridges this gap by investigating vegetable farmers perception of heavy metal contamination from wastewater irrigation in Tamale Metropolis, Ghana. Data were collected through multistage sampling from 70 vegetable farmers in Tamale Metropolis, Ghana. The study employed perception indices to assess farmers perception of heavy metal contamination. An ordered logit regression model was also employed to determine the socioeconomic determinants of farmers perception of heavy metal contamination in the area. The findings show that farmers have moderate perception of heavy metal contamination. They expressed strong concern about heavy metals in agrochemicals, citing risk of bioaccumulation, long-term health effects, and environmental pollution. Factors influencing farmers perception levels included age, education, credit access, participation in farmer-based association, agrochemical use, and training on handling agrochemicals. The study recommends implementing comprehensive educational programs, strengthening regulatory framework, improving farmers access to resources, and promoting sustainable agricultural practices to address the challenges of heavy metal contamination from wastewater irrigation. These findings offer valuable insights for policymakers and stakeholders to enhance food safety and sustainability in sub-Saharan Africa.

Key Words: *Farmers perception, Vegetables, Heavy metals, Contamination, Industrial area, Lamashegu*