

# A Case Study of Counterfeit Pesticides: Public Health Impacts on Farmer Poisoning and Food Security in Ghana's Vegetable Belt

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## Abstract

### Background:

The trade in counterfeit pesticides presents a significant public health and agricultural challenge in Ghana. This case study investigates the impact of these illicit agrochemicals on farmer health and food safety within Ghana's vegetable belt, a crucial region for domestic food supply.

**Purpose** and **objectives:**  
The purpose was to examine the public health consequences of counterfeit pesticide use from 2021 to 2026. The objectives were to analyse trends in acute farmer poisoning and to assess the implications for food security and consumer safety.

### Methodology:

A mixed-methods approach was used. This included a retrospective review of hospital records for pesticide poisoning cases (2021–2025), semi-structured interviews with 35 smallholder farmers and agricultural extension officers, and laboratory analysis of a purposive sample of suspect pesticide products from local markets.

**Findings/Key insights:**  
Hospital admissions for pesticide-related poisoning amongst farmers increased by 40% between 2022 and 2025. Laboratory tests confirmed that 65% of sampled products contained unauthorised or substandard active ingredients. Interview data revealed farmers' widespread difficulty in authenticating products and a clear link between pesticide failure, crop losses, and heightened economic vulnerability.

### Conclusion:

Counterfeit pesticides directly contribute to acute poisonings amongst farmers and compromise food security by reducing crop yields and introducing chemical hazards into the food chain. This represents a pressing public health and food systems crisis in the region.

Recommendations:

Key recommendations are to enhance regulatory surveillance and enforcement at ports and local markets, to implement targeted farmer education on pesticide identification and safe use, and to establish a dedicated regional surveillance system for pesticide-related morbidity.

Key

words:

Counterfeit pesticides, farmer poisoning, food security, food safety, agrochemicals, Ghana, public health.

Contribution

statement:

This study provides documented evidence linking the counterfeit pesticide trade to specific public health outcomes and food system vulnerabilities in a key agricultural region of Ghana, offering a basis for targeted interventions.

**Keywords:** *counterfeit pesticides, farmer poisoning, food security, Ghana, public health surveillance, agrochemical regulation, West Africa*