Biosecurity measures and effects on health performance and antimicrobial use in semi-intensive broiler farms in Uganda

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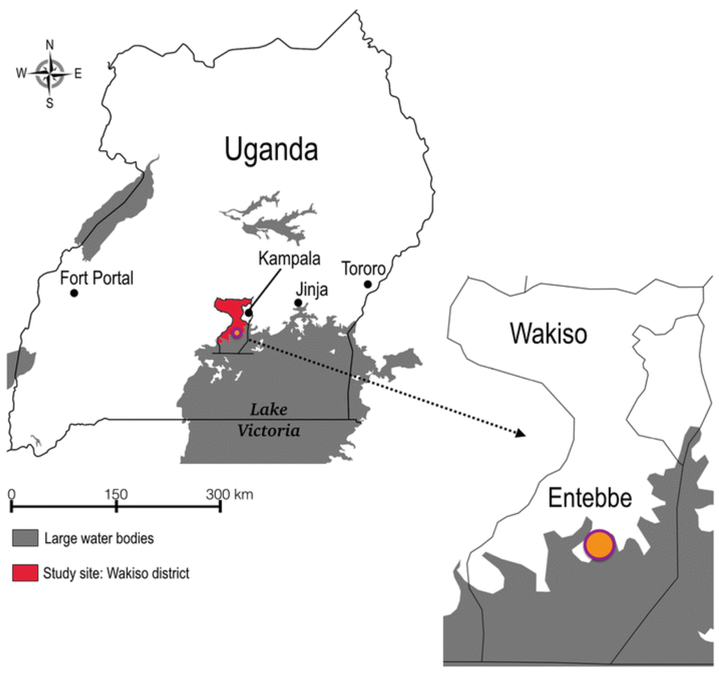
Key messages

- **Inadequate Biosecurity Implementation**: Semi-intensive broiler farms often fall short in effectively implementing biosecurity measures.
- **Antimicrobial Overuse**: The frequent reliance on antimicrobials may be compensating for weak biosecurity practices, masking the true risk of disease outbreaks.
- **Call for Updated Guidelines**: Current biosecurity recommendations need to be revised, emphasizing critical, context-specific actions that can significantly enhance biosecurity in LMICs.

Context

- **Antimicrobial Overuse Drives Resistance**: Indiscriminate antimicrobial use is a key contributor to antimicrobial resistance.
- **Biosecurity as a Cost-Effective Solution**: Strengthening biosecurity can reduce the perceived need for antimicrobial use in livestock, offering a more sustainable approach to disease prevention.
- **Knowledge Gaps in Biosecurity Practices**: There is limited data on how biosecurity measures are implemented in relation to antimicrobial use and animal health in semi-intensive broiler farms in Uganda.

Our approach



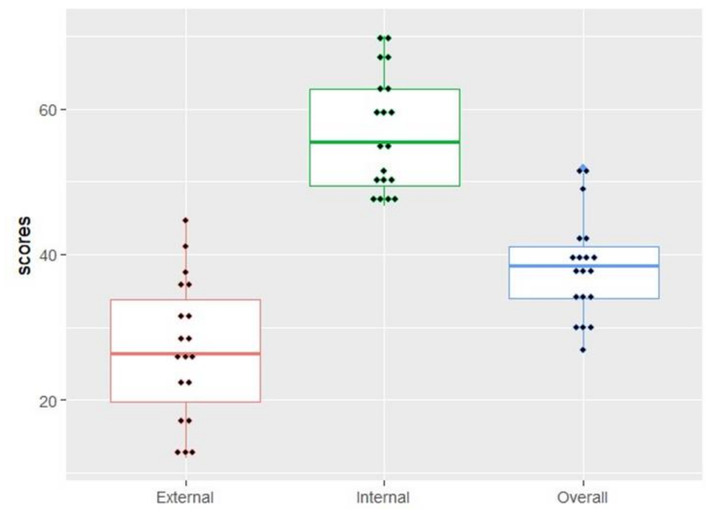
A longitudinal study conducted on 34 flocks within 19 semi-intensive broiler farms for 2 production cycles in Wakiso district, 25km from the capital city Kampala in Uganda.

A FarmUse tool[1] used to capture data on AMU, biosecurity and health performance parameters.

[1] https://hdl.handle.net/10568/145014

A modified Biocheck Ugent tool used to quantify biosecurity on the farms.

Outcomes

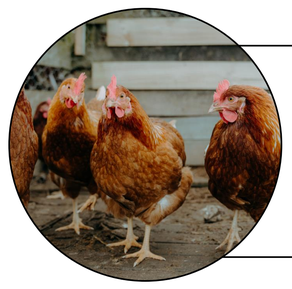


The average biosecurity score was **39%,** with internal biosecurity at **57%** and external biosecurity at **27%**, respectively.

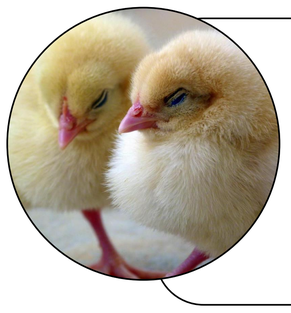
Among the components assessed,

- Infrastructure and biological factors had a mean score of **48%.**
- Feed and water supply had a mean score of **40%.**
- Disease management had a mean score of **61%.**
- Farm location had a mean score of **23%.**
- Purchase of one-day-old chicks had a mean score of **0**.
- Materials and measures between compartments had a mean score of **81%.**
- Removal of dead animals and manure had a mean score of **4%.**
- Cleaning and disinfection of premises had a mean score of **39%.**
- Entrance of visitors and personnel into the farm had a mean score of **30%.**

Photo by Dreck Ayebare/ILRI



All flocks exhibited symptoms of illness, with respiratory ***(n=16)*** and gastrointestinal ***(n=12)*** signs being the most prevalent



The cumulative mortality rate was **2.9%** in the first cycle and **4.5%** in the second cycle ; however, most fatalities occurred during the brooding phase

Antibiotics were commonly utilized for both treatment and preventive purposes, with tetracycline and enrofloxacin being the most frequently administered

Conclusion

- **Variability in Biosecurity Implementation**: Inconsistent application of biosecurity measures across farms leads to varying biosecurity scores.
- **Need for Feasibility and Cost-Effectiveness Studies**: Assessing the feasibility and cost-effectiveness of specific biosecurity measures is essential to pinpoint critical actions that can significantly enhance overall farm biosecurity.

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