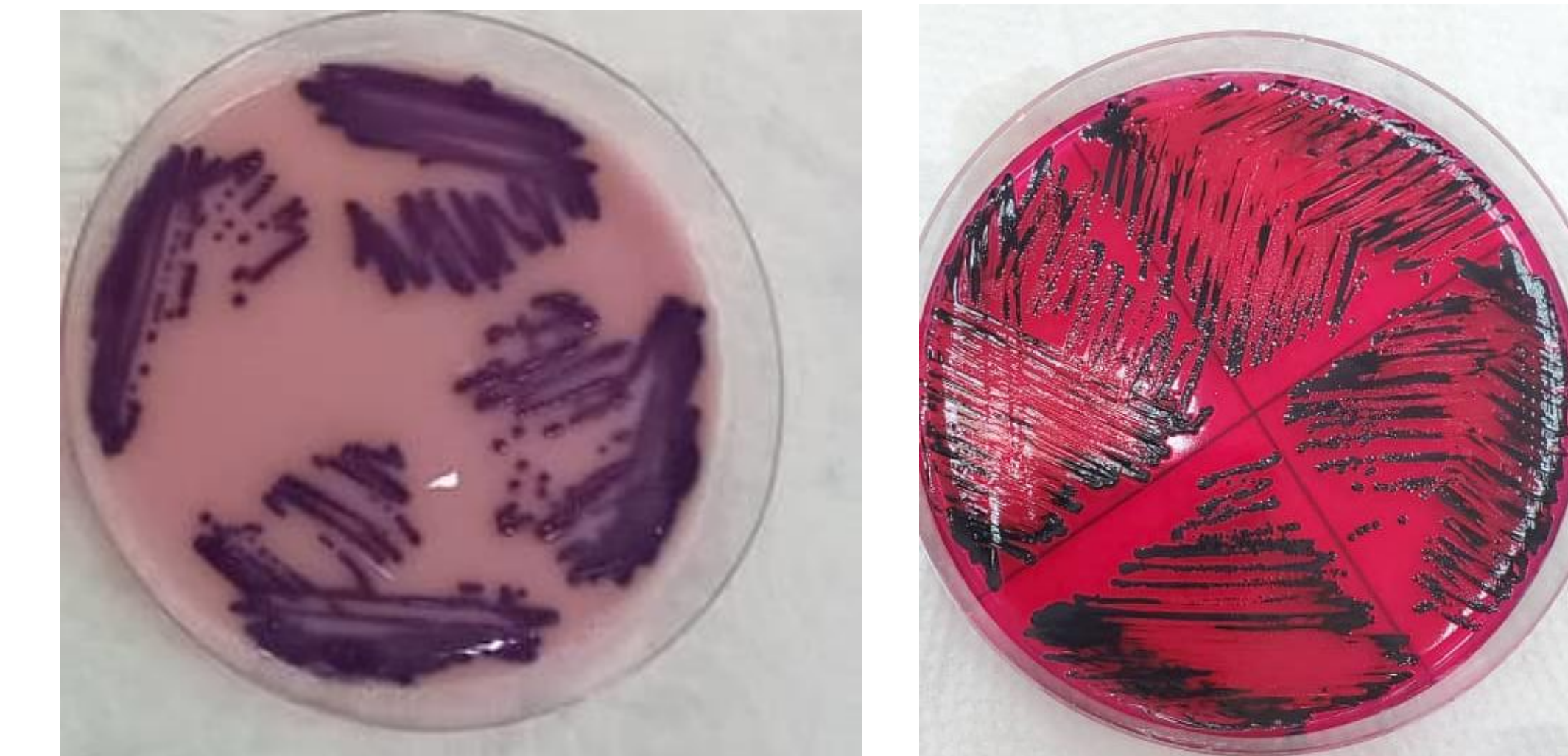


Antimicrobial use and antimicrobial resistance in broiler farms in peri-urban Wakiso, Uganda

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Microbiology analysis



E. coli on Brilliance chromogenic agar and *Salmonella* on XLD

	N farms positive (frequency in [%])
<i>Salmonella</i> spp.	17 (8.5)
<i>E. coli</i>	153 (77.3)
Colistin ^R <i>E.coli</i>	90 (45.5)
Cefotaxime ^R <i>E.coli</i>	102 (51.7)

CFU counts:

- colistin^R *E.coli* = $1 \times 10^2 - 4.6 \times 10^5$ cfu/g
- Cefotaxime *E.coli* $1 \times 10^2 - 1.1 \times 10^6$ cfu/g

Conclusions

- AMU is frequent and imprudent
- Few farms positive for *Salmonella*
- >40% of farms have colistin^R and cefotaxime^R but do not report the direct use of these antibiotics
- Training, biosecurity** and access to **veterinary services** can promote rational AMU.

Introduction

- Antimicrobials are widely used in poultry production
- Use is influenced by many factors

Study objectives

- Describe antimicrobial use (AMU) on semi-intensive, broiler farm in peri urban Wakiso, Uganda.
- Detect *Salmonella* spp. and quantify antimicrobial resistant *E. coli*.

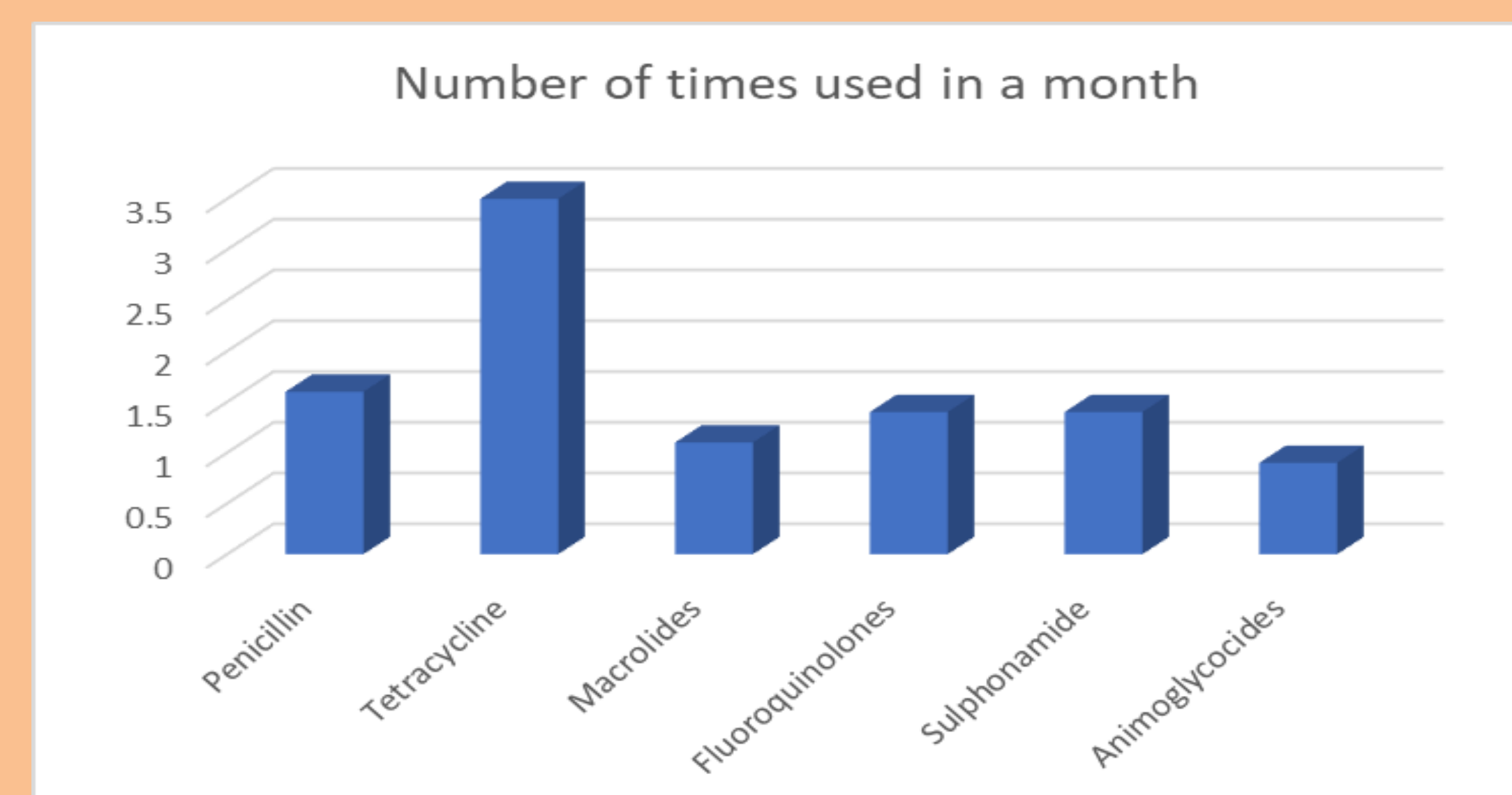
Methodology

- Cross-sectional study on 198 farms randomly selected between October – November 2021 (6 weeks).
- Farm size = 500-2000 broiler birds
- Structured questionnaire was used to capture AMU data. Regression analysis was performed using Stata/SE 17.0
- For microbiology, two samples were collected from one chicken coop per farm: a boot sock and a composite environmental.
- Traditional methods were used to isolate and identify *Salmonella* spp.
- Quantification of AMR *E.coli* was done by serial dilution and plating on MacConkey agar with and without antibiotic (namely cefotaxime and colistin).

Results

Antimicrobial use observations

- Tetracycline was the most reported antibiotic class used (**78%** of farms).
- Purpose of AMU
 - 73.38%** for treatment, **42.86%** for prophylaxis and **7.79%** for growth promotion.
- Poor biosecurity** e.g. lack of footbaths at farm entrances
- Farmers reported **vaccination challenges** i.e. access to vaccines and concerns on efficacy
- Little to no diagnostic** testing to determine pathogen and susceptibility profiles.



Examples of chicken houses

Factors influencing AMU

- Logistic regression showed a significant relationship between
 - Easy access to vet services** and AMU (**Z=6.65 P=0.00**).
 - Having disease prevention training** and AMU (**Z=2.77, p= 0.01**).
 - Practising proper biosecurity** and AMU (**Z=10.4, p=0.000**)