

Alternative to antibiotic in pig production: A Nano silver use trial

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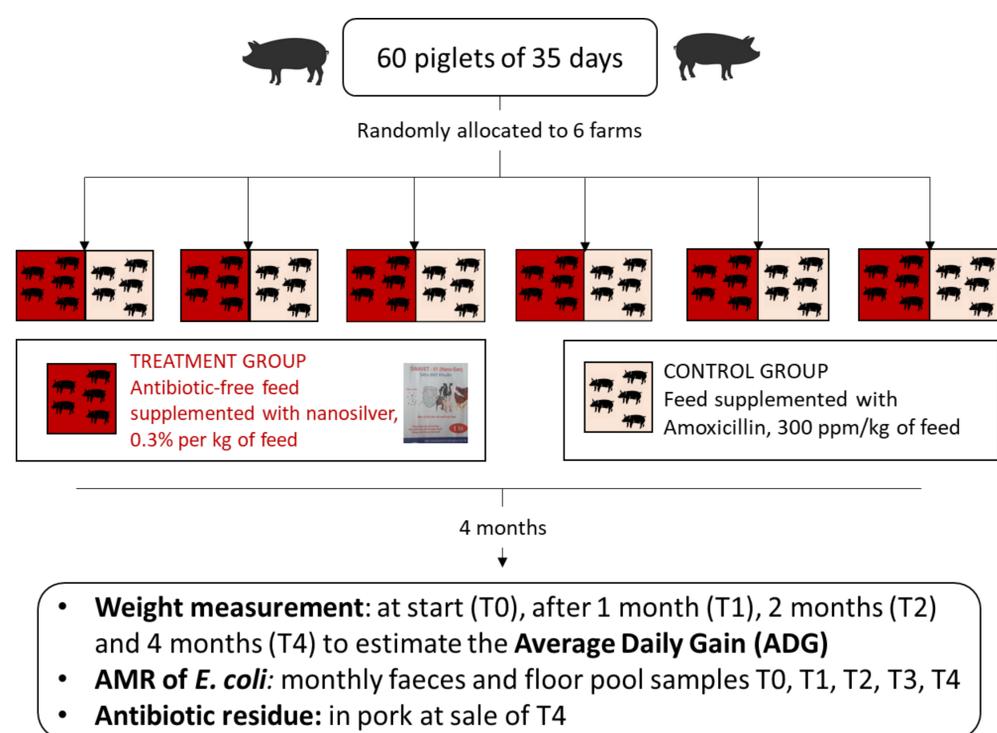
INTRODUCTION

- In Vietnam, around 80% of pork is produced by smallholder farmers who often use antibiotics for disease prevention and growth promotion due to their low cost and lack of farmer knowledge or concern over AMU.
- To reduce AMU in livestock, there is need to identify how farmers could benefit from reduction to motivate behaviour change.

Objective: to test an intervention at farm level to reduce the AMU and AMR by replacing antimicrobials in feed with nanosilver, an anti-microbial agent most commonly used in surface treatments and packaging

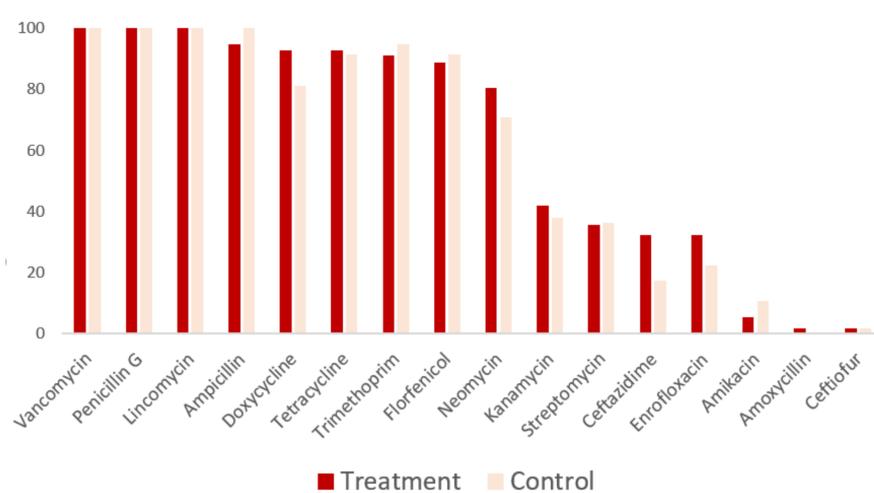


METHODS



RESULTS

AMR and antibiotic residues

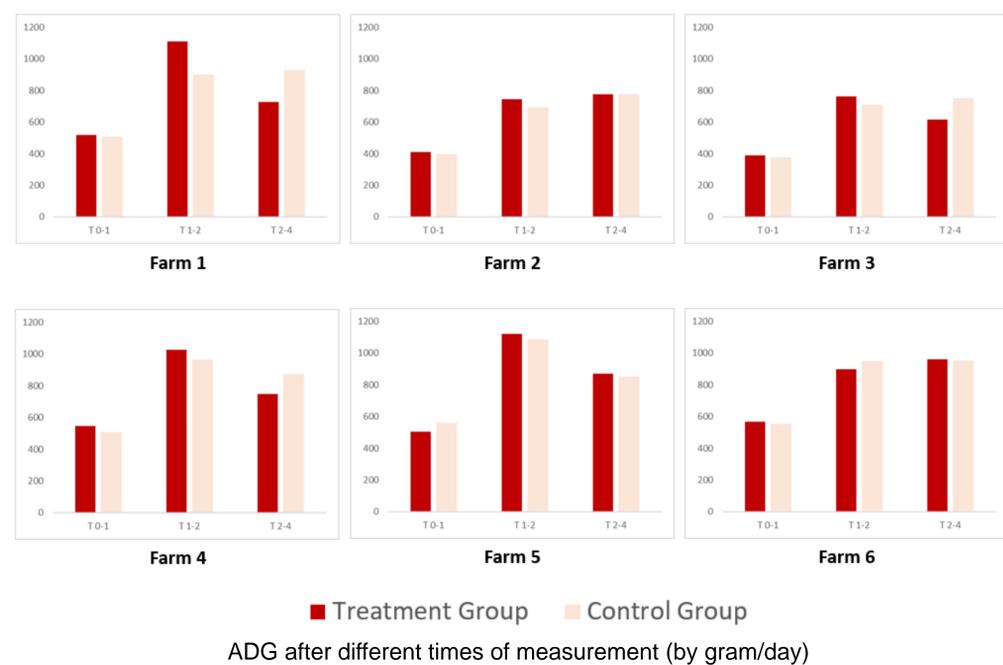


Proportion of AB resistance detected between 2 groups

- Prevalence of *E. coli* in both fecal and floor samples was 100%
- High resistance rates to most commonly used antibiotics
- No significant difference in AMR profile of *E. coli* between the control and intervention group
- No antibiotic residue was found in pork from the intervention group. One (out of six) pork sample of the control group was detected to have amoxicillin at 26.3 $\mu\text{g}/\text{kg}$ (vs. 50 $\mu\text{g}/\text{kg}$ as MRL for Amoxicillin in pork) for a withholding period of seven days.

RESULTS

Average Daily Gain



- No significant difference observed between the control and intervention group at all times of measurement ($p > 0.05$).

CONCLUSION

- The use of nanosilver as replacement of antibiotic added to the feed showed no difference in ADG, nor in AMR profile of *E. coli* in a small-scale pig production.
- These trial results suggest a possible alternative to antibiotic use in pig production to reduce AMU and AMR.
- Evidence of efficacy, cost-benefit, acceptability to farmers, development of resistance, risk assessment for transfer to pork and an environmental impact assessment of nanosilver are needed before scaling up its use.

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