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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

60 piglets of 35 days
Randomly allocated to 6 farms

TREATMENT GROUP
Antibiotic-free feed supplemented with nanosilver, 0.3% per kg of feed

CONTROL GROUP
Feed supplemented with Amoxicillin, 300 ppm/kg of feed

4 months

• Weight measurement: at start (T0), after 1 month (T1), 2 months (T2) and 4 months (T4) to estimate the Average Daily Gain (ADG)

• AMR of E. coli: monthly faeces and floor pool samples T0, T1, T2, T3, T4

• Antibiotic residue: in pork at sale of T4

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 µg/kg (vs. 50 µg/kg as MRL for Amoxicillin in pork) for a withholding period of seven days.

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 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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