

**Reducing antimicrobial use without jeopardizing performance: Key outcomes of a multi-country intervention study**

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Because of the rising threat from antimicrobial resistance, pig farmers are strongly encouraged to reduce antimicrobial usage. Alternative measures have to be implemented, but little is known about their effectiveness and return on investment. The objective of this study was to assess, across four countries, the technical and economic impact of interventions to reduce antimicrobial usage while implementing alternative measures.

An intervention study was conducted between February 2014 and August 2015 in 70 farrow-to-finish pig farms located in Belgium, France, Germany and Sweden. Herd-specific interventions were defined together with the farmer and the herd veterinarian. Farms were followed for one year and their antimicrobial use, as well as technical performance, was compared with values from the year before the intervention. Change in net farm profit was estimated in a subset of 33 farms from France and Belgium with sufficient data, using a production economic model. A sensitivity analysis was conducted to explore parameters mostly influencing the change in net farm profit.

After intervention, a substantial reduction in antimicrobial use was achieved without negative impact on average performance. A median reduction of 47.0% of antimicrobial treatment incidence from birth to slaughter was obtained, corresponding to a 30.5% reduction of antimicrobial expenditures. Mortality, daily weight gain (DWG) and feed conversion ratio (FCR) did not significantly change, whereas the number of weaned piglets per sow slightly increased. The median change in net farm profit was estimated to be EUR4.46/sow/year (Q25-Q75:-32.54; 80.50). This was more influenced by a change in DWG and FCR than by the intervention cost or the change in antimicrobial expenditures. Therefore, costs of alternative measures to reduce antimicrobial usage should not be perceived as a barrier, but rather as an opportunity to optimise production practices for sustained productivity and improved animal health.