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An Attempt to Simultaneously Eradicate *Actinobacillus pleuropneumoniae* and *Mycoplasma hyopneumoniae* from a Small Commercial Continuous-flow Piggery – Biological Failure with Practical Success

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Introduction

Experimental work (1) has shown that if pregnant sows infected with serovar 15 of *A. pleuropneumoniae* are treated with tilmicosin (Pulmotil) prior to farrowing, transmission of *A. pleuropneumoniae* to piglets can be halted for at least six weeks post-farrowing. All piglets were serologically negative, showed no clinical signs and no evidence of disease at slaughter at 16 weeks of age. It is unclear whether vertical transmission was prevented through the total eradication of *Actinobacillus pleuropneumoniae* from the sows or via the reduction of *A. pleuropneumoniae* to levels where shedding did not occur. Preliminary evidence also showed that this medication strategy may be useful for the eradication of *Mycoplasma hyopneumoniae* from infected herds.

Development of an on-farm APP/EP eradication protocol

A 75 sow continuous flow piggery, chronically infected with *A. pleuropneumoniae* serovar 15, had recently introduced breeders infected with *M. hyopneumoniae*. This had resulted in a dramatic increase in respiratory disease outbreaks, which had greatly reduced the farm profitability. The piggery consists of two buildings, one containing the farrowing rooms, weaners and young growers (each room contained animals within a one or two week age range). At 12 weeks of age, growers were moved to the second building, which holds the grower/finishers and breeders in the same airspace. (some with nose to nose contact).

The on-farm eradication protocol incorporated the experimental medication regime into a modified "Swiss" depopulation method, and also incorporated a short SEW period to coincide with the medication period. All sows in the herd were medicated with tilmicosin at a single point in time irrespective of their position in the production cycle ie sows were not only medicated prior to farrowing as in the previous experimental work. The "Swiss" depopulation protocol was used to maximise the likelihood of *M. hyopneumoniae* eradication, and a SEW period was used to eliminate piglets that were farrowed from sows that were not fully medicated. The on-farm protocol was performed as described below.

Day 1
- All animals under ten months of age removed
- Sows with piglets from birth to 14 days are moved to alternate farrowing accommodation off site
- All suckers are weaned and moved off-site
- Medicate at 6.25kg Pulmotil/tonne of feed, with sows fed 1.5kg of feed twice daily.

Days 2-7
- Medication of breeding herd continues, sows not consuming feed should be removed
- Thorough cleanout and disinfection of weaner/grower accommodation commences

Day 7-35
- Medication of breeding herd continues
- All pigs farrowed between days 1-28 of the medication period are weaned at 7 days of age
- On day 28 dry sows are moved to the finisher area to permit cleaning of the sow accommodation

Day 36+
- Medication discontinued
- Normal and piggery management recommences
- Gilts/sows removed during depopulation can be reintroduced after undergoing an equivalent medication program off-site

Results

Serology of the herd prior to the trial showed 50% of weaners and 100% of finishers and sows seroconverted to *A. pleuropneumoniae* serovar 15. Approximately 25% of finishers seroconverted to *M. hyopneumoniae*. Post-medication, all weaners were serologically negative to serovar 15. Five pigs from the third group of growers were observed coughing a week after entry to the grower/finisher shed, and these pigs had been in close proximity to the breeder pigs. The coughing was short lived (2 days) and did not progress through the herd. No clinical signs have been observed since (six months). Seroconversion to serovar 15 commenced in finishers from this third group and has continued to be detected in 25-30% of finishers. *M. hyopneumoniae* serology has reported a 1-2% positivity level. To date, pleurisy levels have not exceeded 1%, and no pleuropneumoniae or enzootic pneumonia lesions have been observed. Tonsil culture has yielded an *A. pleuropneumoniae* serovar 7 isolate!!! Growth rates on the farm have increased by approximately 100g/day and vaccination and medication for respiratory disease is no longer required.

Conclusions

We have not eradicated *A. pleuropneumoniae* from this herd. We are uncertain of *M. hyopneumoniae* eradication. While it appears that this medication strategy does not permanently eradicate *A. pleuropneumoniae* from the breeding herd, there is considerable evidence that it prevents shedding for a long enough period during the weaning period to break the disease cycle. The seronegativity of the weaners to serovar 15 throughout the experimental and on-farm trial is clear evidence of this. We believe that the young growers entered the grower/finisher/breeder building uninfected, but were subsequently infected by the adjacent breeders that had resumed shedding (they had been off tilmicosin for three months).

This project has been unsuccessful in eradicating *A. pleuropneumoniae* from this herd but has eliminated all evidence of clinical respiratory disease and has greatly improved performance.

References

(1) Bowles *et al.* Proceedings of the 16th IPVS, Melbourne 2000, p472.