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SDEC Partners Research Update

Project Update: Effect of Sow Vaccination on the Detection of Influenza A Virus in Pigs at Weaning

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Background

- Influenza A virus (IAV) causes significant herd health issues and economic losses in the swine industry.
- Vaccination is the main control measure applied to control influenza in breeding herds.
- Pre-farrowing and whole herd vaccination with commercial or autogenous licensed vaccines are the most common practices.
- Piglets play an important role in the maintenance and transmission of influenza within and between herds. Thus strategies to minimize the impact of influenza at weaning may be justified.

Objective

Estimate the effect of influenza (IAV) vaccination protocol and type of vaccine on the odds of having groups of positive pigs at weaning.

Methods

52 farms from 8 production systems where enrolled in the study.

Sampling

- Each farm sampled 30 nasal swabs per month for 6 consecutive months. Sampling for all farms occurred between January 2013 to November 2013.
- Pigs selected from the day prior to wean with one piglet sampled per litter (both nostrils/pig).

Testing

- Pools of 3 nasal swabs (10 pools/month/farm)
- UMN Dx lab RT-PCR IAV Matrix gene (positive if Ct < 35)

Results

Protocol and Vaccine Type

63% (33/52) herds vaccinated against IAV

- Vaccination Protocol

  45% pre-farrow, 36% mass, and 19% pre-farrow and mass.

- Type of Vaccine (*missing data from one herd)

  31% autogenous, 53% commercial, and 16% commercial and autogenous.

Testing

- 48% (25/52) of herds tested IAV positive at least once.
- 25% (75/305) of weaned groups tested positive.
- 15% (458/3050) pools tested positive.

- IAV vaccination significantly decreased the percent of positive groups of pigs at weaning (OR=0.26 [0.09-0.73], p=0.01) versus no vaccine use (Table 1).

Influenza	Vaccinated farms n (%)	Non vaccinated farms n (%)
Positive	14 (44)	11 (58)
Negative	19 (56)	8 (42)
Total	***33 (100)***	***19 (100)***

- Pre-farrow and mass vaccination protocols significantly decreased the percent of positive groups at weaning (OR=0.18 [0.04-0.71] p=0.01 & OR=0.23 [0.05-0.97] p=0.04, respectively) versus no vaccine use. There were no significant differences between pre-farrow and mass vaccination (p=0.52).

- Commercial vaccines significantly decreased the odds of detecting positive groups at weaning (OR=0.20 [0.06-0.73] p=0.01) versus no vaccine use and there was an observed positive trend for autogenous vaccines (p=0.06). There were no significant differences between both commercial and autogenous vaccines (p=0.52).

Conclusions

- Vaccination decreased the odds of detecting groups of pigs positive at weaning.
- Groups from vaccinated sows had lower numbers of positive pools.
- Pre-farrow and mass vaccination protocols decreased the odds (and pools) of groups of pigs testing positive at weaning.
- Commercial vaccines were effective at decreasing the odds (and pools) of groups of pigs testing positive at weaning, with a positive trend identified for autogenous vaccines as well.