

Slaughter Health Checks: 2010 Findings



TECHNICAL BULLETIN

Background

Slaughter health checks can be a valuable tool for providing a better understanding of a herd's overall health status. A slaughter health check involves evaluating pigs at the slaughter plant for disease lesions including pneumonia, mainly due to *Mycoplasma hyopneumoniae* (mycoplasma), liver scarring due to roundworm larval migration, atrophic rhinitis (AR) and mange. **Evaluating pigs at slaughter enables assessment of disease levels in "normal" pigs, unlike necropsy examinations which focus on evaluating lesions in "sick" pigs.**

One reason for conducting a slaughter health check is to follow up on a clinical disease problem. A slaughter check enables the veterinary practitioner to evaluate the impact of the disease on the population at large, rather than on a few pigs necropsied during a diagnostic workup. A second reason is to evaluate a change in a herd's health program or some other production practice by providing information beyond routine production records. A third reason is to identify diseases that are not clinically apparent in the herd.

This report presents recent findings from slaughter health checks performed by Merck Animal Health technical service veterinarians during the fall of 2010.

Procedure

A total of 25 groups of pigs from 17 swine operations located in the Midwest United States were checked. The operations were either prospective customers that were using competitor's mycoplasma vaccines, or current customers that were using either Merck Animal Health's Myco Silencer® ONCE or M+Pac®. None of the herds reported active mycoplasma outbreaks in the groups that were checked. Most of the pigs (1151/1533, 75.1%) were vaccinated for mycoplasma with either Myco Silencer ONCE or M+Pac vaccines using a two-dose protocol or Boehringer Ingelheim Vet Medica's (BIVM) one-dose vaccine (MycoFlex®). The Merck Animal Health vaccines were only used as two-dose vaccines although both have approved claims and can be used as one-dose vaccines. The remaining pigs were vaccinated with competitor two-dose (291 pigs, five groups, two farms) or one-dose (91 pigs, one group, one farm) products. From each group on average, 63 pigs were evaluated for pneumonia lesions, liver scars, mange and serosal lesions in body cavities. For AR evaluation, 10-15 pigs per group were evaluated.

The level of pneumonia was determined based on the percentage of visible lesions on the surface of the lung as previously described.¹ Results are reported as averages and percentage of lungs with >5 percent and >20 percent visible lesions. Snouts were evaluated for AR, livers for roundworm larval migration scars and skin for red papules indicative of sarcoptic mange using previously described methods.²

The mycoplasma vaccination status for each group was obtained from the producer along with treatment information and the "market cut" (top half, bottom half or both halves) of the pigs that were checked. Twenty-two of the 25 groups were from the bottom half, but were full-value market pigs, not culls. One group of MycoFlex vaccinated pigs was from the top half and the other two groups containing both top and bottom half pigs were vaccinated with either Myco Silencer ONCE using a two-dose protocol or a competitor's one-dose product.

Statistical analysis was performed on the pneumonia lesion data with regard to number of vaccine doses administered, regardless of product, and specific products/number of doses.

Findings

The following table summarizes the lung lesion data based on individual pig data:

Vaccination Status	Number Evaluated			Average % Pneumonia	% with Pneumonia	
	Herds	Groups	Pigs		>5%	>20%
All Pigs	17	25	1533	3.25	17.0	3.6
All 1-Dose	10	13	805	5.01 ^a	27.6	6.6 ^a
All 2-Dose	8	12	728	1.29 ^b	5.2	0.7 ^b
BIVM - 1-Dose	9	12	714	5.12 ^c	27.3	7.0 ^c
Merck Animal Health - 2-Dose	6	7	437	1.29 ^d	5.9	0.7 ^d

a,b and c,d Values within columns with different superscripts were significant at P<0.05.



The differences in average percent pneumonia and the percentage of lungs with >5 percent and >20 percent pneumonia were significantly different when comparing one-dose versus two-dose mycoplasma vaccination programs regardless of the product used.

MycoFlex one-dose vaccinated pigs had significantly higher levels of pneumonia than the Merck Animal Health two-dose vaccinated pigs. On a herd basis, the average, minimum and maximum percent pneumonia was 4.9 percent, 2.7 percent and 8.5 percent, respectively for one-dose MycoFlex and 1.4 percent, 0.3 percent and 4.4 percent, respectively for the two-dose Merck Animal Health vaccines. The level of pneumonia in Myco Silencer ONCE and M+Pac vaccinated pigs were similar (1.21 percent versus 1.34 percent, respectively).

AR was evaluated in 16 of the herds. Five herds had no AR lesions, five had mild lesions and six had moderate lesions. Liver scars were observed in a few pigs in 2 of 17 herds while mange lesions were observed in only one herd. Four herds had moderate to high levels (>5 percent) of serosal lesions.

Summary

The level of pneumonia was found to be greater in pigs vaccinated with one-dose mycoplasma vaccines compared to pigs vaccinated with two-dose vaccines. More specifically, the level of pneumonia in pigs vaccinated once with MycoFlex was significantly greater compared to pigs vaccinated twice with either Myco Silencer ONCE or M+Pac. These findings may explain, in part, the reported increased level of mycoplasma pneumonia in the U.S. swine industry over the past few years.³ This increase appears to be temporally associated with increased use of single-dose mycoplasma vaccines, mainly MycoFlex, which is often used in conjunction with BIVM's PCV2 vaccine CircoFlex®.

The performance of single-dose mycoplasma vaccines has been assessed and debated for over a decade. Based on comparative performance most pigs in the U.S.

have been vaccinated using two-dose products. However, the reported convenience of mixing single-dose mycoplasma vaccine with single-dose PCV2 vaccine (BIVM: CircoFlex & MycoFlex) has resulted in at least a temporary shift back to single-dose mycoplasma vaccination programs for some producers. Apparently, history appears to be repeating itself with regard to the questionable performance of some single-dose mycoplasma vaccine programs under field conditions.

The level of AR was greater than expected. One of the slaughter checks revealed a rhinitis problem that was unknown to the producer. Liver scars and mange lesions were found at a very low level. Serosal lesions were a concern in several herds but these findings were not surprising to the producers.

We are continuing to conduct more slaughter health checks to assist producers with managing their herd health programs. If you are interested in having your pigs checked, contact your Merck Animal Health sales representative, or one of our technical services veterinarians.

References

1. Thacker, BJ, et al. Comparison of mycoplasmal lung lesion scoring methods. In: Proc. 21st Congress International Pig Veterinary Society, Vancouver, Canada, 2010, p. 144.
2. Pointon, AM, et al. Disease surveillance at slaughter. In: Diseases of Swine (8th Ed.) Straw, B., Taylor, D., Mengeling, W., D'Allaire, S. (Eds.), Iowa State University Press, pp. 1111-1132, 1999.
3. Schwartz, KJ. Mycoplasma still a profit robber. National Hog Farmer Weekly Preview, October 4, 2011. <http://nationalhogfarmer.com/weekly-preview/1004-mycoplasma-profit-robber/>.