

# The use of antemortem tracheobronchial mucus collection technique for *Mycoplasma hyopneumoniae*

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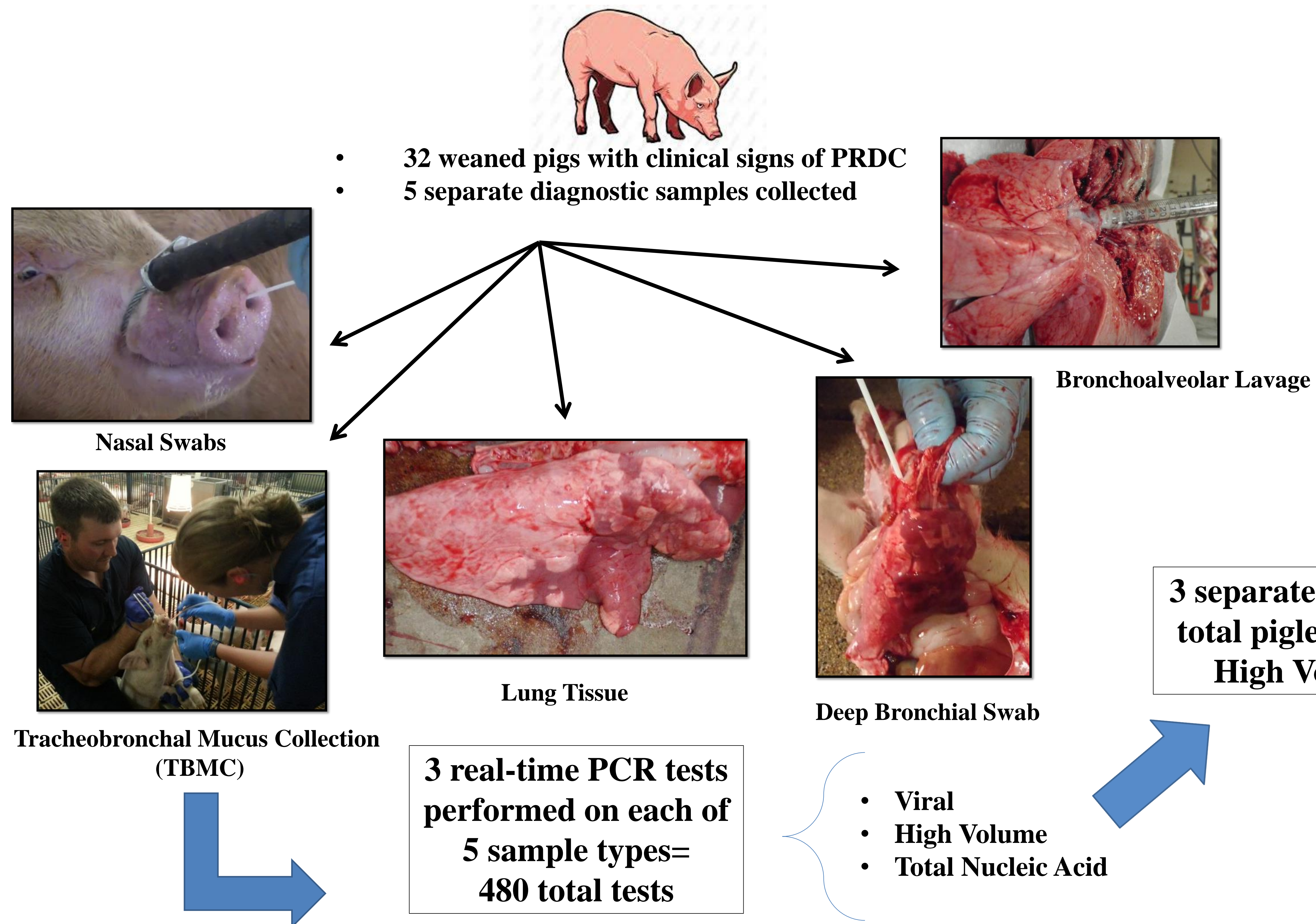
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## Introduction

*Mycoplasma hyopneumoniae* (*M. hyo*), the causative agent for porcine enzootic pneumonia and a key component in the porcine respiratory disease complex (PRDC), is a significant disease threat to the swine industry. The focus of this study was to refine antemortem *M. hyo* detection methods for future use in determine the baseline herd prevalence in the United States pre-weaned pig population. A innovative tracheobronchial mucus collection (TBMC) method was compared to four existing diagnostic sampling techniques. It was then applied to pre-weaned piglet populations on three separate swine farms with known prevalence of *M. hyo*.

## Materials and Methods

- 32 weaned pigs with clinical signs of PRDC
- 5 separate diagnostic samples collected



## Results and Discussion

- TBMC had the highest level of sensitivity (59.3%), while nasal swabs had the lowest level of sensitivity (6.25%)
- Sample collection method had a significant effect on *M. hyo* PCR value ( $p < 0.0001$ , Table 1).
- Least squared means Ct value for TBC was lowest compared to other four samples.
- No significant interaction between extraction technique and sample collection method ( $p = 0.7555$ ).
- In TBMC High Volume PCR testing of 1759 piglets, 1.1% of litters were positive for *M. hyo*. (Table 2).

SAMPLE COLLECTION TECHNIQUE				PREDICTED LEAST SQUARES MEAN CT
Nasal Swab	A			37.6
Lung		B		32.5
Bronchial Alveolar Lavage		B	C	32.1
Deep Airway Swab			C D	30.2
Tracheobronchial Swab			D	29.0

Table 1. Predicted least squares mean of CT values for five sample collection techniques for *M. hyo*\*  
\*Levels not connected by the same letter are significantly different ( $p < 0.05$ )

SOW FARM	% PCR (+) (GROUP 1) <sup>†</sup>	% PCR (+) (GROUP 2) <sup>‡</sup>	% PCR (+) (GROUP 3) <sup>§</sup>	Total Pigs Sampled
#1	0/40 = 0.0%	1/40 = 2.5%	0/40 = 0.0%	590
#2	0/40 = 0.0%	0/40 = 0.0%	1/40 = 2.5%	591
#3	0/40 = 0.0%	0/40 = 0.0%	0/40 = 0.0%	578
<b>TOTAL</b>	<b>0.0%</b>	<b>2.5%</b>	<b>2.5%</b>	<b>1,759</b>

Table 2. Percent *M. hyo* Positive\* (+) Pooled PCRs by Group and Sow Farm

\*PCR positive = CT < 37, PCR negative = CT ≥ 37

<sup>†</sup> Group 1 = Gilts

<sup>‡</sup> Group 2 = Parity 2 or Parity 3 sows

<sup>§</sup> Group 3 = Parity 4 or greater sows

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