

ORAL FLUID COLLECTION IN PIGS



INTRODUCTION

Oral fluid sampling is an effective tool for swine health monitoring. It can be used to detect the presence of a disease agent or antibody response within a population and to monitor how pathogenic agents and diseases circulate in swine. Oral fluid samples can be used to detect a current or recent infection with PRRS virus, Porcine Circovirus 2, swine influenza and other infectious agents or to help assess vaccine compliance.

Oral fluid is the liquid present in the oral cavity. It is a mixture of saliva, which is produced by the salivary glands, and fluid entering the mouth from the capillaries. The oral fluid specimens are easily collected using cotton rope, which allows for a quick, easy, non-invasive and inexpensive collection process. The oral fluid samples can be tested for antibodies and/or pathogens, similar to a blood sample.

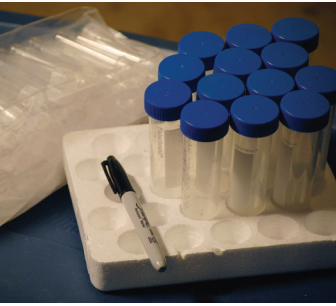
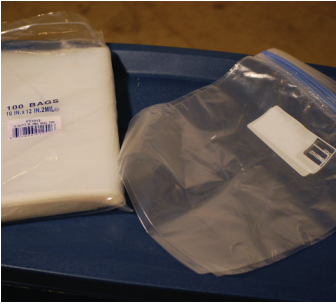
Using cotton ropes to collect oral fluid samples from swine can be a quick and easy addition to your herd health monitoring practices. Cotton ropes can be used to collect samples from individual pigs or groups of pigs depending on your diagnostic and surveillance needs. To help maximize the benefits of using oral fluid as a herd health monitoring tool, collection of oral fluid samples and the analysis of the results should be conducted by a veterinarian or with the guidance of a veterinarian.

As oral fluid sampling continues to develop, protocols may change including such procedures as the length of time a rope may be left in the pen or the number of ropes that may be hung per pen.

SUPPLIES FOR ORAL FLUID COLLECTION

The supplies needed are simple and inexpensive to acquire. The following is a list of supplies that may be used during the sample collection:

- 1. 3-strand twisted undyed cotton rope [1/2 inch (1.3cm) for nursery pigs; 5/8 inch (1.6cm) for grow/ finish and adult pigs].**
Because cotton rope is highly absorptive, you can remove one of the strands, and use the remaining two twisted strands for nursery pigs.
- 2. Clean plastic bag, single-use plastic boot, or semen collection bags**
- 3. Side cutters, knife or scissors**
Side cutters, postmortem knife or scissors may be used to cut cotton rope from the pen divider or bracket.
- 4. Snap-cap, screw-top tube, or red-top tubes**
Collection tubes may include most tubes with a cap. **However, make sure that tubes do not contain additives such as EDTA or heparin.** If using glass blood collection tubes, use only red-top tubes (without additives).
- 5. Permanent marker**
- 6. Gloves**
Wear disposable gloves to prevent contamination of oral fluid samples. If you squeeze down the rope and the rope is not in the bag, wearing disposable gloves is recommended.
- 7. Bracket (optional)**
Occasionally, pigs will untie ropes from pen dividers, so a bracket or device to secure the rope may be needed. Also, brackets are useful when sequential collections are made. The type of bracket or how it is hung may need to be modified depending on the layout of pens and pen dividers. Tools may be needed to secure brackets.



COLLECTING ORAL FLUID

STEP ONE

- Place rope in a clean area of the pen divider or gate away from feed or water.
- For pens with 25 or more pigs, two or more ropes may be used for collection. In this situation, the samples may be pooled by pen.
- Cut rope so it will be at shoulder height of the pigs when tied to pen divider.
- Tie knot and unravel strands.



STEP TWO

- Oral fluid will be absorbed as pigs chew on ropes.
- Ropes should remain in the pens for 20-30 minutes to ensure adequate exposure to the majority of the pigs in the pen.





STEP THREE

- Wear disposable gloves to prevent contamination of oral fluid samples.
- Insert the wet end of the rope into a clean plastic boot or bag.
- Strip the rope so the fluid accumulates in the corner of the bag or a tube if it is connected to the bag.
- For other extraction techniques, please refer to the Oral Fluid Collection DVD.



STEP FOUR

- Cut a corner of the plastic bag and drain fluid into the collection tube. If using a bag with a connected tube, then disconnect tube.
- A minimum sample of 2.5 ml is recommended.
- Discard all ropes after collection. Never reuse ropes, plastic bags or collection tubes. Never leave ropes in the pens after finished sampling.
- Do not pool oral fluid samples from ropes in different pens.

HANDLING AND SHIPPING

OF ORAL FLUID SAMPLES AFTER COLLECTION



- Contact the diagnostic laboratory before collection to confirm the laboratory uses assays optimized for oral fluid.
- If samples are clean, no further processing is needed. If samples contain particulates, centrifuge for 10 minutes and deposit liquid into a clean tube.
- Oral fluid samples to be submitted on the same day should be chilled and submitted with ice packs. Samples submitted for PCR or antibody detection may be frozen and sent at your convenience.
- Samples for shipment to the testing laboratory must be prepared in compliance with the same federal guidelines required for serum samples. This includes, for example, shipping in a properly labeled, insulated and leak proof container that is lined with a plastic bag. Pack the samples with ice packs and an absorbent material to absorb any unexpected leakages. Remember to include the proper paperwork indicating that the samples are oral fluid samples for diagnostic testing.

FREQUENTLY ASKED QUESTIONS

- Q:** How many ropes should be hung in each building?
- A:** Although sample size calculations for specific pathogens have not been established, current research shows that sampling 6 pens in 1,100-head barns at two-week intervals will likely detect the circulation of PRRSV, PCV2, and SIV.
- Q:** Do I need to use the rope size suggested or will a smaller diameter rope work?
- A:** By using a 1/2" or 5/8" rope, you will be able to collect a larger amount of oral fluid, especially when collecting from finishing animals. A smaller diameter rope may work for nursery pigs which produce a smaller amount of oral fluid. Larger pigs may destroy smaller diameter ropes before you are able to extract the sample.
- Q:** Can I just cut off the cotton rope containing oral fluid and include it in the bag instead of extracting the fluid?
- A:** No, a cotton rope included in the submission could dry out during shipping. Always extract the oral fluid sample from the rope before submitting the oral fluid to the diagnostic lab.
- Q:** Should the oral fluid extracted from each cotton rope be submitted separately or can I combine samples?
- A:** The oral fluid collected from ropes placed in separate pens should be submitted separately. Current research indicates that oral fluid samples from different pens should not be pooled due to a decrease in diagnostic sensitivity.

TROUBLESHOOTING TIPS

Pigs are more active in the morning. If pigs are inattentive to the rope, the afternoon collections may take more time than the standard 20-30 minutes. If reluctant to approach the rope, pigs can be trained by placing a rope into the pen to play with or by flavoring these practice ropes with sugar solutions. The pigs will then more aggressively chew on the diagnostic sample ropes in the future. These training ropes should be discarded. Do not collect diagnostic samples from ropes contacting the floor or from flavored ropes. Samples submitted should not contain large amounts of organic material such as feed or fecal material.

For more information, refer to the Oral Fluid Collection DVD.

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TIME
9 MINUTES 15 SECONDS