Salmonella sampling for **a combined deep litter and slatted shed using drag swabs**

Purpose/Scope: This SOP provides a methodology for conducting *Salmonella* sampling in a combined deep litter and slatted shed

FREQUENCY
Every 12 to 15 weeks

MATERIALS NEEDED

- Cotton guaze swabs, can use either:
  - See instructions on how to make your own*or,
  - Tampons or,
  - Supplied by laboratory
- 1.5m cotton string
- Disposable latex gloves
- Sample transport liquid (peptone water)
- ^Whirl-Pak® bags or screw top plastic jar
- Scissors
- Permanent marker
- Laboratory sample submission form
- Plastic post satchel for transporting swabs to the laboratory
- Plastic container for swabbed samples

* Making cotton gauze swabs

^ https://www.whirl-pak.com/whirl-pak-bags-general-information

MAKING THE COTTON GAUZE SWABS

1 Obtain a 10cm x 10cm cotton gauze and fold onto itself in a pleated pattern.

Figure 1
Image: Michael J et al. 2020

2 Continue folding gauze to form a pad.

Figure 2
Image: Michael J et al. 2020

3 Tie the cotton string around the centre of the cotton gauze.

Figure 3
Image: Michael J et al. 2020

4 Wind string around the cotton gauze.

Figure 4

5 Place the required number of swabs for each shed into their own plastic container or Whirl-Pak® bag.

6 Store the rest in a dry, secure place.

PROCEDURE

Step 1
Get prepared

1. Notify the laboratory 24 hours in advance of sending the swab samples.
2. Obtain a sample submission form from the laboratory.
3. Prepare **one (1) swab** for each **litter** area and one (1) swab for each **slatted** area (see Example 1.)

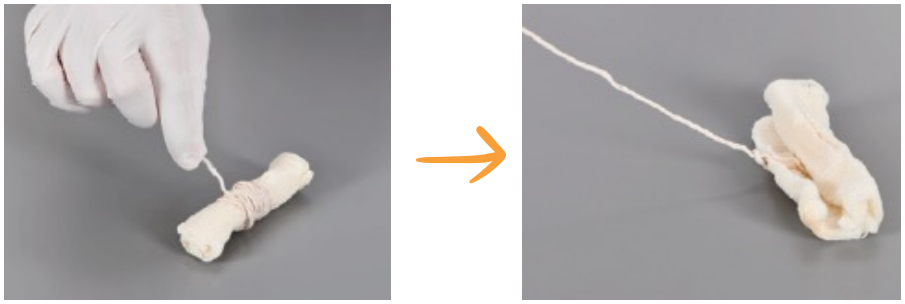
Example 1. Number of swabs required based on number of pens/ partitions

Number of litter areas	Number of slatted areas	Number of swabs required
1	1	2
1	2	3
2	1	3
2	2	4

Step 2
Swab the shed

1. Wash your hands.
2. Put on a pair of disposable latex gloves.
3. Moisten **Swab 1** with water from the drinkers or solution provided by the laboratory.
4. Hold **Swab 1** by the string and unravel (Figure 5).

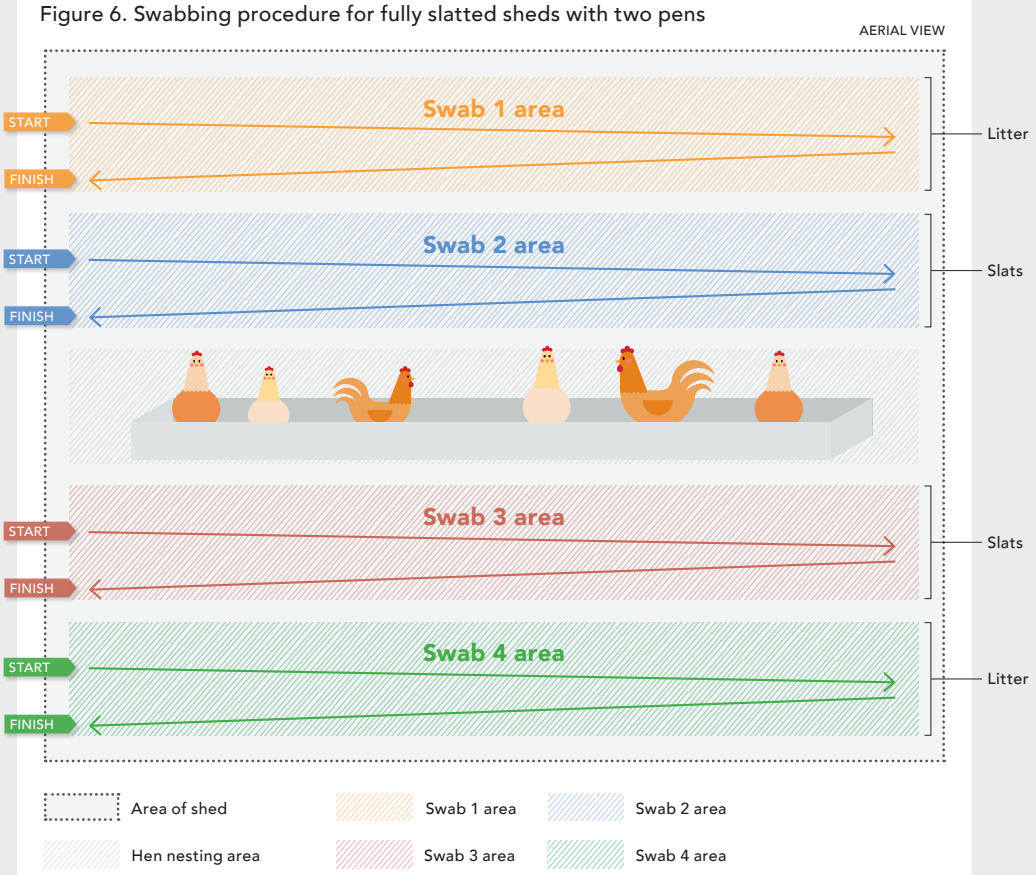
Figure 5. Hold the swab by the string and unravel (Romer Labs)



PROCEDURE

5 Drag **Swab 1** twice the full length of one **litter** area in the pattern described in Figure 6 (yellow and green arrows).

Figure 6. Swabbing procedure for fully slatted sheds with two pens

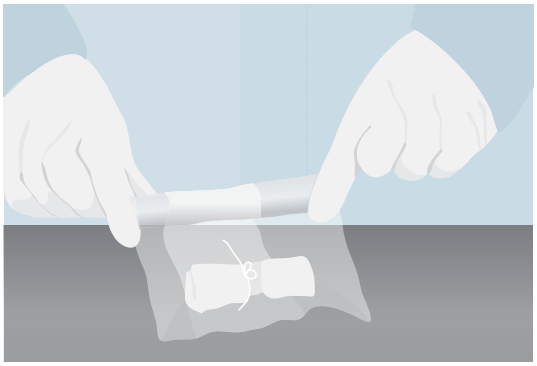


6 **Swab 1** should be considered finished when the swab has returned to the side it started from.

7 The string should not be included in the sample sent to the laboratory, cut the string from **Swab 1** with a pair of scissors.

8 Place **Swab 1** in a Whirl-Pak® bag or screw top plastic jar (Figure 7).

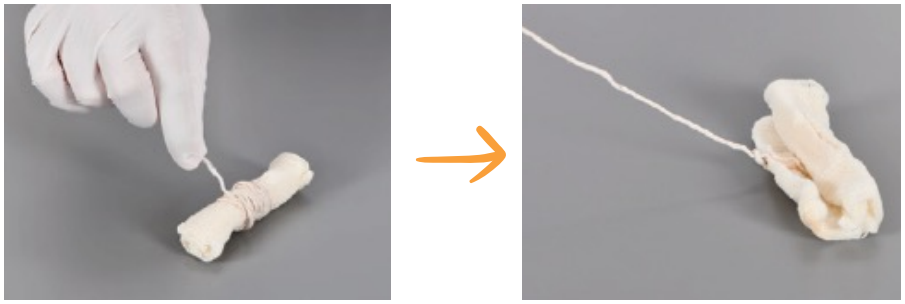
Figure 7. Put swab into Whirl-Pak® bag (Romer Labs)



PROCEDURE

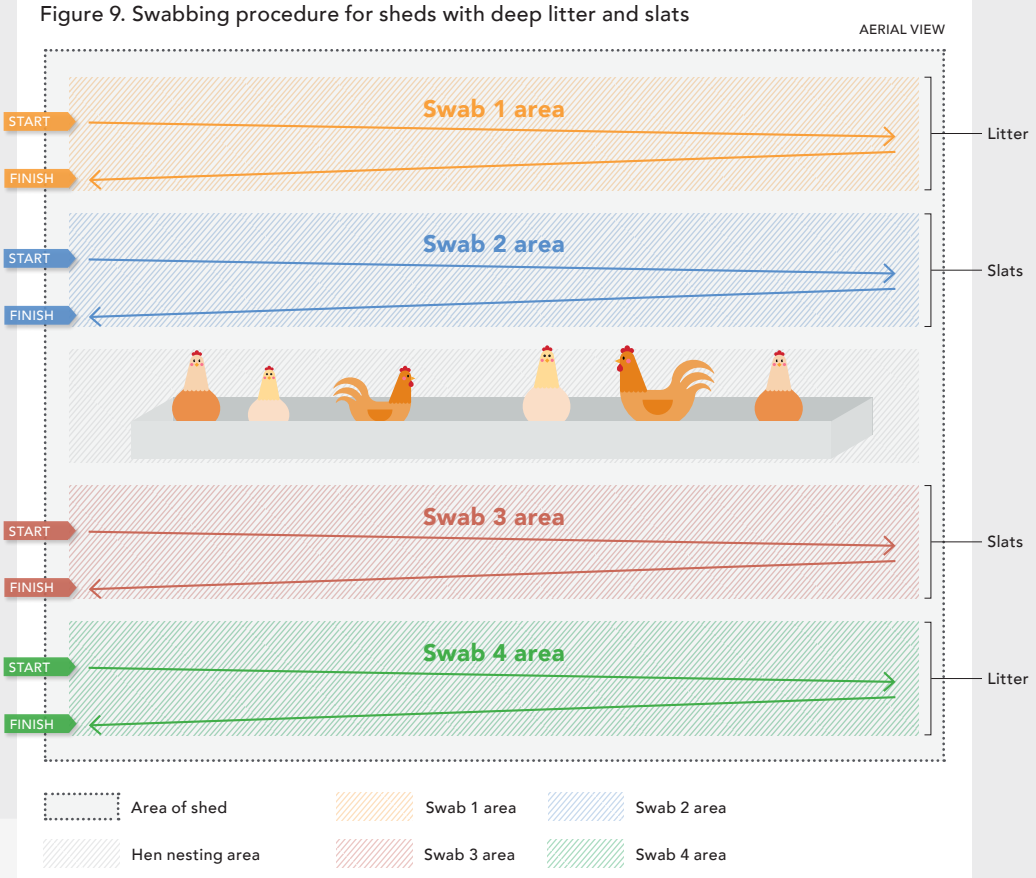
9. Seal the bag or plastic jar.
10. Moisten **Swab 2** with water from the drinkers or solution provided by the laboratory.
11. Hold **Swab 2** by the string and unravel the entire piece of string (Figure 8).

Figure 8. Hold the swab by the string and unravel (Romer Labs)



12. Drag **Swab 2** twice the full length of **one slatted area** in the pattern described in Figure 9 (blue and brown arrows).

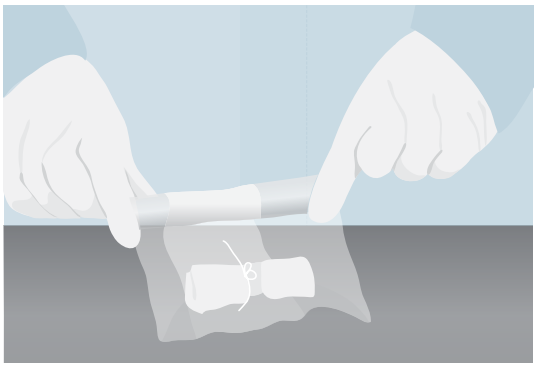
Figure 9. Swabbing procedure for sheds with deep litter and slats



PROCEDURE

13. **Swab 2** should be considered finished when the swab has swabbed 'up and back' and returned to the side of the shed it started from.
14. The string should not be included in the sample sent to the laboratory, cut the string from **Swab 2** with a pair of scissors.
15. Place **Swab 2** in a Whirl-Pak® bag or screw top plastic jar (Figure 10).

Figure 10. Put swab into Whirl-Pak® bag (Romer Labs)

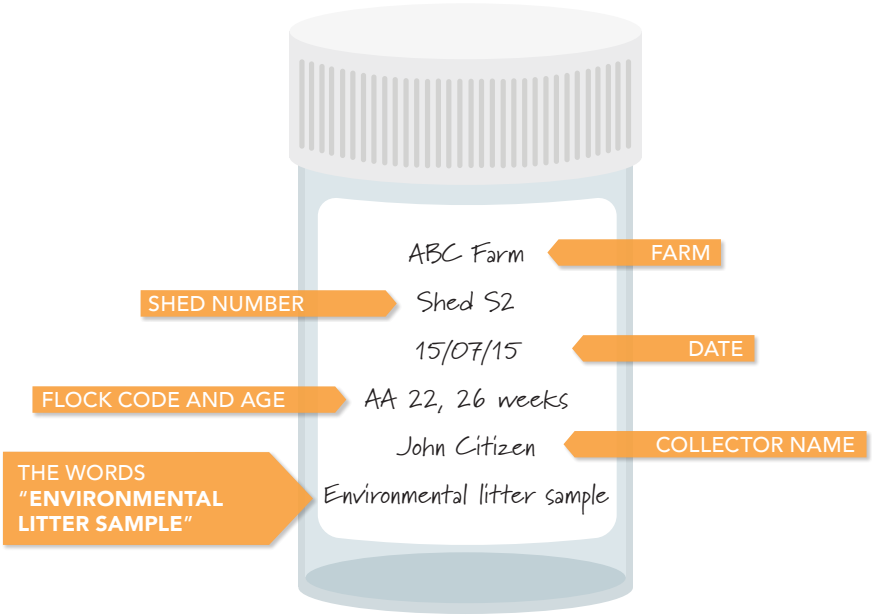


16. Seal the bag or plastic jar.
17. **Repeat procedure 3–9 for Swab 3** on any other **slatted** areas.
18. **Repeat procedure 10–16 for Swab 4** on any other **litter** areas.

Step 3 Pack the samples

1. Each sample should be placed in it's own Whirl-Pak® bag or screw top plastic jar. Clearly label each bag or jar with permanent marker.
2. Include information as per Example 1.

Example 1. Information to include on the Whirl-Pak® bag or screw top plastic jar



3. Complete the laboratory sample submission form (always record on submission sheets as "ENVIRONMENTAL LITTER SAMPLES").

PROCEDURE

Step 4
Submit the samples

1. Pack the swabs that are in the bags (Figure 11A) securely into a plastic container (Figure 11B) and put the container into a plastic post satchel (Figure 11C).

Figure 11. Pack swab samples

11B
https://ie.vwr.com/store/product/17962031/sample-container-with-screw-cap-sterilin#gallery-1

11C
https://auspost.com.au/shop/product/flat-rate-small-satchel-10-pack-059049131?fm=recommendations:shop:1

2. Put the completed sample submission form into the same plastic post satchel as the swabs.
3. Post the samples to the diagnostic laboratory.
4. If the swabs cannot be posted on the same day, store the swabs in the fridge (between 4 and 8°C) until ready to be posted. Conduct procedures 1 to 4 as soon as possible.

Swabs must not be frozen.

REFERENCE

Michael J. Sikorski, Myron M. Levine 2020 Reviving the "Moore Swab": A Classic Environmental Surveillance Tool Involving Filtration of Flowing Surface Water and Sewage Water To Recover Typhoidal *Salmonella* Bacteria

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