

# Technical Notes:

## An Improved Esophageal Fistula Bag for Sheep

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### Abstract

An improved bag for collecting samples from esophageal fistulated ewes was tested. The new bag reduced the time required to fit it to the animal and to remove the collected forage.

The use of esophageal fistulated animals is a preferred method of collecting samples representative of the diet of a grazing animal (Van Dyne and Torell 1964, Rice 1970, Vavra et al. 1978, Johnson and Pearson 1981, McInnis et al. 1983). The conventional collection bag, a square canvas bag attached around the neck by 2 straps, provides an adequate means of collecting esophageal extrusa (Fig. 1). However, these bags are time consuming to fit to the animal and

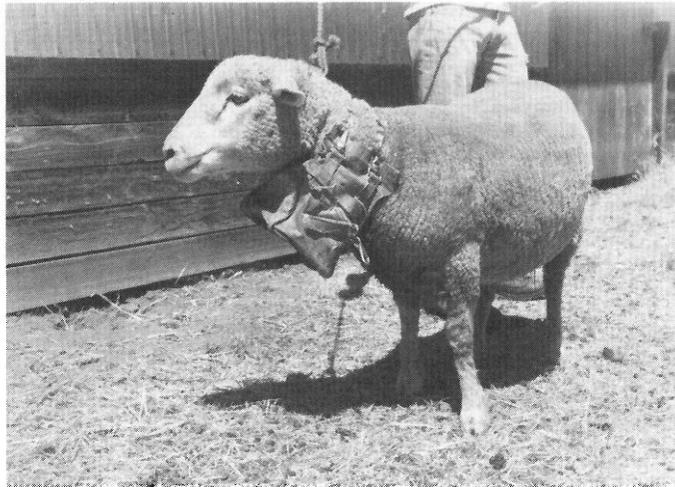


Fig. 1. Esophageal fistulated ewe with conventional collection bag.

transfer of the collected forage involves removing the bag from the animal. When taking repeated samples with several sheep, removing the bag, removing the sample from the bag, and finally replacing the bag can cause a delay in the sampling procedure. To reduce this delay a collection bag was developed that can be quickly fitted to the animal and allow for easy transfer of collected forage.

### Procedure

The new collection bag consists of a fabric collar, which fits around the neck of the sheep, attached to a 2-cm wide ring made by sawing through a 10.2-cm dia. schedule 160 (5-mm wall thickness) PVC pipe (Figs. 2 and 3). A plastic bag is attached to the collar by placing the mouth of the bag around the PVC ring and sliding a second ring made of a 2-cm wide slice from the end of a 10.2-cm dia. PVC coupler over the plastic bag. The thickness of the plastic bag between the PVC ring and coupler provides a friction fit that will hold the bag in place. The fabric used in the collar in Figure 2 was  $248 \text{ gm m}^{-2}$  ( $8 \text{ oz yd}^{-1}$ ) urethane coated nylon pack cloth.

Figure 4 shows a cutting diagram for the fabric collar. All raw edges of the fabric are folded over 1 cm and stitched. Referring to Figure 4, end "A" is stitched to end "B" to form a ring. Inserts "D" are then stitched into the areas labeled "C" with the wide side to the top. All seam allowances are 1 cm. Flaps "E" are cut long enough

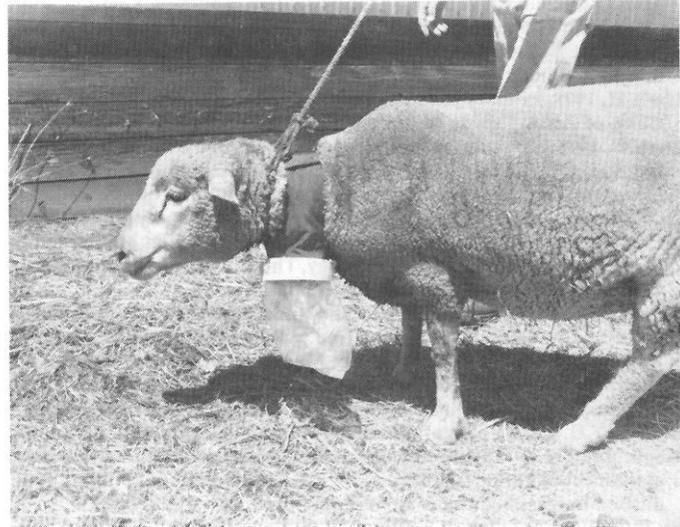


Fig. 2. Esophageal fistulated ewe with improved collection bag.



Fig. 3. Improved collection bag.

so they overlap each other by approximately 10 cm when wrapped around the neck of the sheep. Strips of hook and loop fastener (Velcro) are sewn to the ends of flaps "E" to provide a means of

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adjusting and closing the collar. In order to attach the PVC ring to the fabric collar, a 1-mm deep groove is cut in the outside of the ring 5 to 7 mm from one edge, and .5-mm dia. holes are drilled every 5 mm around the circumference of the ring along the groove. The fabric collar is stitched to the ring through these holes.

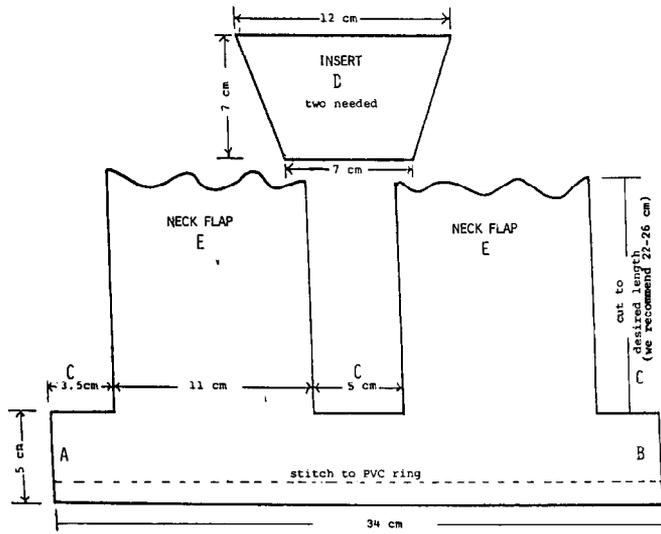


Fig. 4. Cutting diagram for fabric collar.

### Discussion

This bag design requires less time to fit to the animal than the conventional bag. The collar is simply wrapped around the neck of

the sheep and is closed by means of the hook and loop closure. The clear plastic bag provides a convenient window through which to check the alignment of the bag with the fistula. To transfer collected forage the full plastic bag is removed by grasping the coupler ring with the fingers and sliding it off while pressing against the inner ring with the thumbs. An empty plastic bag can then be attached to the collar without removing the collar from the animal. If collection of saliva is not desired several holes punched in the bottom of the plastic bag will allow saliva to drain. The whole process takes 15 to 30 seconds. This bag design has worked well in open grassland. However, in brush areas the plastic bag may tear on the brush. In this situation a heavy weight plastic bag or a nylon mesh bag can be used to reduce the chance of losing a sample.

### Literature Cited

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