An inexpensive alternative esophageal cannula for growing steers and wethers

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Abstract

A method for manufacturing esophageal cannulas from plastic tee couplers of suitable size for growing steers and wethers is described.

Key Words: cannula, measurements

The plethora of recent papers that described esophageal cannulas is indicative of the difficulty in preparing and maintaining fistulated cattle and sheep. Many authors have discussed esophageal irritation, 'pouching', 'esophageal depression', 'pocketing', pressure necrosis, and the accumulation of granulated tissue due to heavy or permanent esophageal cannulas (Van Dyne and Torell 1964, Osbourn and Bredon 1971, Denney 1981, Forwood et al. 1985, Walker et al. 1985, Grunwaldt and Sosa 1986). Furthermore, some manufactured cannulas are too large to fit the esophageal lumen of growing steers and wethers. If cannula are too large, esophageal occlusion or expansion of the esophagus around the fistula is likely. This paper describes the manufacture of lightweight flexible split-tee cannulas of suitable dimensions for growing steers and wethers.

Material and Methods

Flexible, plastic, split tee cannulas were manufactured from

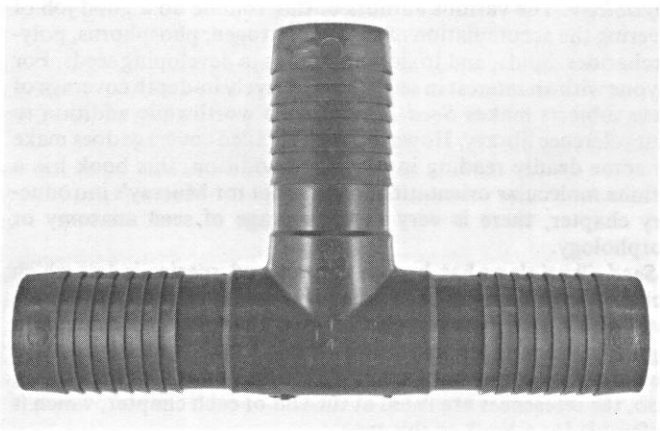

Fig. 1. *3.2-cm plastic tee coupler used to manufacture esophageal cannulas for steers.*

plastic tee couplers (Fig. 1). Tee-couplers were cut (Fig. 2) similar to Walker et al. (1985) and filed or sanded smooth to form esophageal cannulas (Fig. 3). Stoppers were made from wooden dowels and covered with nontoxic enamel paint or lacquer. A completed cannula could be made in about 1 h.

Results and Discussion

Three sizes of plastic split-tee cannulas were manufactured. For 250-kg steers, 3.2 cm plastic tee coupler was used to manufacture

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[1]Precision Machine Co., Inc., 2933 N 36th, Lincoln, NE 68504.

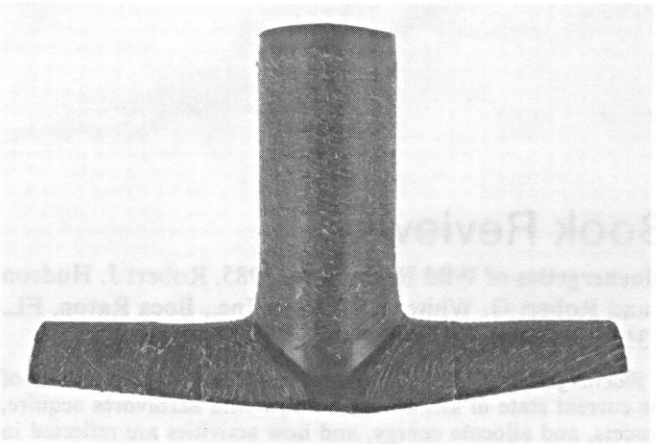

Fig. 2. *3.2 cm plastic tee coupler partially shaped into an esophageal cannula.*

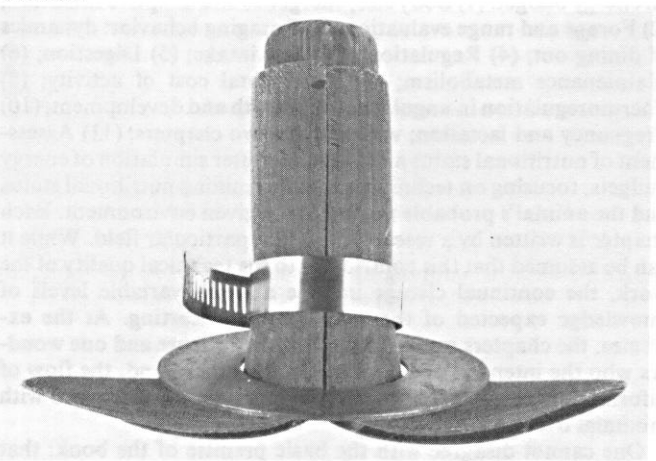

Fig. 3. *Plastic split-tee esophageal cannula for steers manufactured from 3.2 cm plastic tee coupler.*

cannulas with 3.5 × 14-cm blades with 3.3-cm plug diameters. These cannulas weighed 50% less than polyvinyl chloride cannulas (Walker et al. 1985) and only 11% greater than the stainless steel[1] sleeve type cannulas for cattle (Osbourn and Bredon 1971). For 25-kg wethers, 1.9-cm tee couplers were used to make cannulas with 1.5 × 8.5-cm blades with 1.5-cm plug diameters. For 50-kg wethers, 2.5-cm tee couplers were used to make cannulas with 2.5 × 9.0-cm blades with 2.5-cm plug diameters. The cannulas for wethers weighed 65% less and only 6% greater than stainless steel sleeve type cannulas for 1.5-cm and 0.25-cm diameter cannulas, respectively.

Van Dyne and Torell (1964) reported greater survival rate of fistulated animals due to more efficient cannulas. Further, Forwood et al. (1985) indicated that heavy metal cannulas caused esophageal depression and irritation. Therefore, cannulas should be low maintenance, light weight, easily manufactured from readily available materials, of proper size for the animal, and of a design

to minimize esophageal blockage, depression and cannula loss. The plastic, split-tee cannulas described herein meet these requirements.

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