EFFECTS OF A CHEMICAL FEED ADDITIVE AND FORMALDEHYDE-GAS FUMIGATION ON SALMONELLA IN POULTRY FEEDS

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INTRODUCTION

Salmonella infections of livestock and poultry continue to be an important problem in the United States and other areas of the world. Domestic animals have been considered the largest single reservoie of *Salmonella* organisms. Accumulated evidence has indicated that *Salmonella* contaminated feed may be the major contributing factor in maintaining this reservoir. As Edwards (1958) has noted, it is obvious that any effort to eradicate salmonellosis from domestic animals must take into consideration the continuous seeding of the population through infected feedstuffs.

Wedman (1961) called attention to the potential disease problem resulting from the "cycling" of a number of *Salmonella* serotypes from farms to processing plants and back to farms by animal by-products incorporated into feeds. Morehouse and Wedman (1961) isolated *Salmonella* from a wide variety of animal by-products. Recontamination of ingredients after processing was believed to be the principle factor for the presence of *Salmonella*.

Increasing interest in developing methods to eliminate or reduce *Salmonella* recontamination of feeds and feed ingredients has been generated by the concern that *Salmonella* may contaminate products from domestic animals processed for human consumption. Rasmussen *et al.* (1964) reported that heat treatment reduced the incidence of *Salmonella* in animal by-products. Mossel *et al.* (1967) discussed the effect of pelleting and terminal low dose irradiation on *Salmonella* incidence in feeds. However, the cost of pelleting and extrusion equipment makes control of *Salmonella* by heat treatment economically infeasible for many producers who

utilize on-the-farm systems of mixing feeds. A possible on-the-farm means of eliminating Salmonella in feed by use of a chemical additive (Endgerm[R]) was reported by Westerfeld (1970). He concluded that although the additive did not eliminate Salmonella from contaminated feeds, a reduction in the number of Salmonella initially present may have taken place.

The purpose of this study was to investigate further the capability of Endgerm to reduce Salmonella in feeds, and to investigate formaldehyde-gas fumigation as a possible means of eliminating Salmonella in feeds.

[R] Registered trademark for a chemical mixture supplied by Chemical Industries, Des Moines, Iowa.