

ABSTRACT

An Investigation into the Incidence of *Salmonella* in Fresh Shell Eggs in Trinidad

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The presence or absence of *Salmonella* on the eggshells and in the egg contents of freshly laid eggs from ten of the most important egg farms in Trinidad with respect to their total egg production, was investigated in the study. Three sets of egg trials were carried out over a six month period in which a total of 750 eggs was sampled and cultured for *Salmonella*, in pooled batches of 25 eggshells and 25 egg contents per farm per trial. The United States FDA Bacteriological Analytical Manual's official standard culture method for *Salmonella* isolation was used principally, together with API 20E kits for rapid biochemical confirmation. *Salmonella* was isolated from both the eggshells surfaces and egg contents of the freshly laid eggs sampled from the commercial layer farms, suggesting the potential capacity of laying flocks in Trinidad to produce naturally infected table eggs. *Salmonella* was detected in 35 of the 750 pooled eggshells cultures, and in 9 of the 750 pooled egg contents cultures. Thus a higher prevalence of *Salmonella* was found on the eggshells surfaces (4.66%) than in the egg contents (1.2%) of the eggs sampled.

The prevalent *Salmonella* serotypes isolated from the 750 pooled eggshells surfaces were principally *S. typhimurium* (3.66%), followed by *S. enteritidis* (0.67%) and to a lesser extent *S. ohio* (0.27%), *S. cerro* (0.26%), *S. infantis* (0.27%) and *S. heidelberg* (0.13%). The prevalent *Salmonella* serotypes isolated from the 750 pooled egg contents cultures were principally *S. enteritidis* (0.8%) and *S. typhimurium* (0.4%). *Salmonella* was more frequently isolated from the eggshells surfaces, than in the egg contents.

Variations were observed in the presence and frequency of *Salmonella* contamination both on the eggshells surfaces and in the egg contents within a particular farm; between the 10 farms and each of the three egg trials. The observed individual farm's level of environmental contamination, sanitation, quality control, egg handling, rearing and other management practices, appeared to play a significant and contributory role to the presence or absence, and variations in the *Salmonella* contamination of the eggshell and egg content cultures of the different farms.

It was concluded that the isolation of *Salmonella* from eggshells and more importantly from egg contents of the table eggs sampled, suggests the possible risk and health hazard of such eggs reaching the consumers. In order to prevent and control the possible contamination of eggs with *Salmonella* and the resultant illnesses that may arise from the consumption of such eggs, it was recommended that (i) preventative and remedial control measures at the farm level together with (ii) effective food safety practices in handling, cooking and holding of eggs and egg dishes, be adopted by egg producers, food handlers and consumers.