

January 2006

Dear Parents and Youth Educators:

The purpose of this letter is to shed some light on concerns that individuals have expressed about the Chick Embryology program in pre-school and elementary classrooms. The main concerns that we have heard are concerns about avian influenza and salmonella.

The majority of 4-H Educators and teachers who use 4-H Embryology lessons obtain fertile eggs from commercial hatcheries that are cleaned and sanitized each week. These commercial hatcheries are periodically tested for disease organisms by in-house technicians and by the New York State Department of Agriculture and Markets. The inspection system is linked to a National Poultry Improvement Plan that is a federal/state/industry partnership to guarantee disease free eggs.

Health inspections are standard practices poultry breeders use to monitor their egg producing farms and hatcheries on a regular basis and institute best management practices to reduce the possibility of Salmonella organisms; due to their keen interest, in food safety. The egg also possesses its own defense mechanisms. There are egg white proteins such as conalbumin and avidin that are antimicrobial in that they either chelate iron needed by bacteria for growth (conalbumin) and bind biotin (avidin) that is also needed by some bacteria for growth. There are some other enzymes, i.e., B-acetylglucosaminidase, that is thought to be inhibitory against gram-negative bacteria such as Salmonella. Besides these chemical barriers there are also the physical barriers such as the cuticle, shell, and shell membranes that physically keep out bacteria. The shell membranes are known to contain several of the chemical inhibitors (lysozyme and B-acetylglucosaminidase) that may act to inhibit invading organisms. The pH of the egg white is also inhibitory to some organisms (alkaline) as well as the viscosity of the egg white may retard the movement of microorganisms. All of these factors plus the maternal and chick immune system help to control microorganisms.

It is scientifically documented that rodents are mechanical vectors of Salmonella, specifically mice moving in and out of food animal production facilities. Thus, poultry companies use a variety of rodent control systems to reduce Salmonella infection risk. In the public school system, especially in the classroom setting, rodents do not present a risk. The classroom chick is basically hatching from a semi sterile environment. Since newly hatched chicks in the classroom are not put into a poultry house on litter, with feed, and with thousands of other chicks, the likelihood of them having Salmonella even in their feces is very small.

The 4-H Embryology Curriculum recommends and advocates that all children thoroughly wash their hands before and after handling fertile eggs, live chicks, or any