

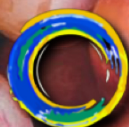
Enhancing Egg Safety Post-Pandemic: A Preliminary Study of Microbial Content from Diverse Sources and Future Training Opportunities for Backyard and Local Eggs Producers.

Maria Amalia Beary¹, Michal Matejczuk¹

¹. Cornell University, Ithaca, NY, USA

Eggs are a crucial source of high quality proteins, vitamins, and minerals for humans around the world. In the United States, a person eats on average 281.3 eggs/year. The COVID-19 pandemic created a shortage of several food staples, including fresh shell eggs. Hence, consumers turned to local sources such as farmers markets, and also adopted the creation of their own backyard coops. Commercial eggs are highly regulated in the United States, especially regarding *Salmonella* contamination. Farmers' markets and homestead eggs do not face the same requirements, therefore there is an inherent risk of contamination and potential outbreaks if adequate safety measures are not in place. Lately, *Salmonella* outbreaks related to backyard poultry are on the rise. This study compared, at the microbial level, the bacterial load between commercial and local fresh eggs, and identified the opportunities ahead to ensure that consumers of these local sources are aware of the potential risks, and recommend egg safety practices. A total of 108 eggs from 9 different outlets were analyzed through different media, on internal content and external egg surface. Quality check of acquired eggs was included in the analysis. Commercial eggs results were statistically significant ($p < .01$) compared to farmers' markets and homestead samples for aerobic plate counts (APC) and coliforms. On the Xylose Lysine Deoxycholate agar & Hektoen enteric agar colony growth was observed in 57% of the farmers' market samples and 43% of the homestead eggs sample plates, out of the total samples destined for differential media ($n=24$). No colony growth was observed in media pertaining to commercial eggs. Whole genome sequencing was performed on positive selective media plates. Results showed presence of pathogenic *E.coli* strains in homestead eggs, and other Enterobacteriaceae such as *Leclercia adecarboxylata*, and *Citrobacter freundii*. Opportunities for food safety education of small-scale egg vendors, as well as consumers could aid in the prevention of contamination and future outbreaks.

Agradecimentos: To Cornell University.

**BRAFP**International Association for
Food Protection