National Association of Egg Farmers

February 24, 2025

The Honorable Marc Korman
251 Taylor House Office Building
6 Bladen Street
Annapolis, MD 21401

Dear Mr. Chairman:

This letter is meant to assist you and your committee in considering poultry production facts in deciding on Maryland House Bill 834 mandating that eggs produced and sold in the state must be from cage-free egg facilities starting Jan. 1, 2030. Unfortunately, this legislation will lead to higher egg prices at a time when consumers are looking for ways to reduce the cost of eggs. Furthermore HB 834 will not improve the welfare of hens, will not improve food safety for consumers, will not improve air quality for farm workers, and will not safeguard poultry from highly pathogenic avian influenza.

1. **Health and Welfare of the chicken**:

The "pecking order" is the term applied to chickens establishing dominance. Where the population size is limited to less than a dozen birds, it reduces the harm from pecking. The difference is plainly visible to everyone who has observed chickens in varying production systems. When thousands of chickens are together in a cage-free setting, pecking each other in cage-free systems has led to higher mortality among cage-free chickens.

The Coalition for Sustainable Egg Supply reported at International Poultry Production and Processing Exposition in Atlanta, GA on January 26, 2016: "Total accumulated mortality was highest in the cage-free system (11.5%), due to aggressive pecking and cannibalism. It was 4.7% in conventional cages". Conventional cages reduce the size of this population and thus reduces the stress caused from pecking and the mortality from suffocation when birds pile into a corner.

Forcing chickens into production systems that increases mortality is less humane.

Keel bone (breast bone) breakage was highest in the cage-free system. Increased keel bone breakage was confirmed with research at the University of California-Davis. This research study shows the majority of breast bone damage originates from collisions with perches in cage-free environments. Dr. Maja Makagon, assistant professor of applied animal behavior at University of

California, Davis' Department of Animal Science, noted the increased bone breakage in cage-free systems.

Dr. Ivan Alvarado, DVM with Merck Global Business reported at a poultry conference on the **external parasites in cage-free farms**. 83% of European cage-free egg farms are already infested with poultry red mites he stated as the dominant method of producing eggs is in cage-free and free-range systems.

Subjecting poultry to bone breakage and parasites without the benefit of approved medication is inhumane.

Infectious Coryza Disease - The August 2018 Georgia Poultry Laboratory "The Chick Papers" reported "In more recent history, a new threat has made itself known. Virulent Newcastle Disease (VND), formerly known as **Exotic Newcastle Disease (END), has spread through backyard flocks of cage-free chickens in California** posing a threat to commercial production there. Now there is **Infectious Coryza (IC).** Small flock operations are typically backyard cage-free poultry.

Campylobacter hepaticus, the cause of **Spotty Liver Disease** in layers is creating problems for poultry in free-range environments. Scientists Robert J. Moore, Peter C. Scott & T.T. Hao Van (2019) spotlight the problem and publish their results in Avian Pathology. This research-Campylobacter hepaticus, the cause of Spotty Liver Disease (SLD) in layers, is found in Avian Pathology, 48:4, 285-287, DOI: 10.1080/03079457.2019.1602247.Spotty Liver Disease has been reproduced in layer birds by direct oral challenge with Camplylobacter hepaticus and those scientists theorize that natural transmission is via the fecal-oral route. The fecal-oral route of infection is consistent with the observation that **SLD (Spotty Liver Disease) is most commonly seen in free-range birds, sometimes in barn birds and less frequently in caged layers**.

Free-range and Outdoor access-This method of producing eggs does not contribute to better poultry welfare because it can subject chickens to additional poultry diseases such as highly pathogenic avian influenza. This is recognized by the US Department of Agriculture Animal & Plant Health Inspection Service noting that chickens outdoors should not have contact with migratory waterfowl. (http://www.usda.gov/documents/avian-influenza-protect-birds-qa.pdf). Migratory birds, through fecal contamination, can fly over a flock of outdoor chickens and contaminate them. One teaspoon of avian influenza infected manure dropped among outdoor chickens has the potential to contaminate one million chickens. See testimony in link below by Ken Klippen, National Association of Egg Farmers at Senate Agriculture Committee July 7, 2015 hearing on highly pathogenic avian influenza.
https://www.agriculture.senate.gov/hearings/highly-pathogenic-avian-influenza-the-impact-on-the-us-poultry-sector-and-protecting-us-poultry-flocks

Forcing chickens into production systems where they contract poultry diseases is inhumane.

2. **Food Safety**

The US Animal Health Association October 17, 2017 Report stated: "**Ascarids (round worms) are increasingly being found in cage-free** operations with the concern being the possibility of a consumer finding an egg with a roundworm contained inside. Most all cage-free egg producers have had such an occurrence." Chickens pick up roundworms when they come into contact with infected feces on the ground.

CDC Reports Salmonella Again from Backyard Flocks

The Center for Disease Control & Prevention announced May 24, 2025 that once again backyard chickens continue to sicken people with Salmonella infections. They have reported cases of Salmonella infection from backyard poultry for over a decade. CDC stated "*Backyard poultry, such as chickens and ducks, can carry* Salmonella *germs even if they look healthy and clean. These germs can easily spread to anything in the areas where the poultry live and roam. You can get sick from touching your backyard poultry or anything in their environment and then touching your mouth or food and swallowing* Salmonella *germs.* (https://www.cdc.gov/salmonella/outbreaks/backyardpoultry-05-24/index.html)

In the **Journal Food Control** published a study June 17, 2014 entitled "Microbiological Contamination of Shell Eggs Produced in Conventional and Free-Range Housing Systems" The conclusions show why cages became the preferred method of producing safer eggs: "Battery caged hens (conventional cages) are standing on wire slats that allow feces to fall to a manure collection system beneath the hens. Conversely, **free-range hens (cage-free) laid their eggs in nest boxes on shavings and the eggs remained in contact with hens**, shavings and fecal material until they are collected. The longer contact time with free-range hens, shavings and feces would explain the higher enterobacteriaceae counts on free-range eggs as compared to battery caged eggs." https://www.sciencedirect.com/science/article/abs/pii/S0956713514003673

Penn State researchers in September 2016 published their research findings that eggs from small flocks of chickens are more likely to be contaminated with Salmonella enteritidis as eggs sold in grocery stores, which typically come from larger flocks of caged layers.

3. **Cost**

The Feb. 14, 2025 *Egg Markets Overview* by USDA reported "*The wholesale price on the New York market for formula trading of Large cartoned shell eggs delivered to retailers rose $0.28 to $8.23 per dozen with a firm undertone. In the major Midwest production region, wholesale prices for Large, white, shell eggs delivered to warehouses increased $0.34 to $7.81 per dozen with a firm undertone while prices paid to producers for*

Large cartoned shell eggs increased $0.39 to $7.64 per dozen. The California benchmark for Large shell eggs rose $0.06 to $9.17 per dozen". Eggs sold in California regardless of what state they were produced in must be cage-free (California-compliant). Consumers are paying 15% more for California-compliant.
https://www.ams.usda.gov/mnreports/ams_3725.pdf

4. **Sustainability**

The rush by retailers and food manufacturers to source their egg needs from cage-free facilities must consider these facts on sustainability. The cost to implement new barns for cage-free chickens needed is calculated at $45 per chicken. For 200 million chickens producing for retailers demanding cage-free systems, that's a capital investment of $9 billion. Cage-free egg production costs are determined to be 32% higher than conventional cages.

5. **Human health and welfare**

A study conducted by the Coalition for Sustainable Egg Supply reported that the cage-free system had dust levels 8-10 times higher than other systems. In addition, the cage-free system resulted in high worker exposure to endotoxin dust particles and reduced lung function by the end of a shift.

6. **Consumer Choice**

With all egg farmers producing cage-free, it will remove consumer choice. The Animal Ag Alliance partnered with the Foundation for Food and Agriculture Research (FFAR) and the Food Industry Association (FMI) to study consumer beliefs and willingness-to-pay for specific attributes in cage-free eggs and slow-growth boilers. Each survey had more than 2,000 respondents who made choices between products that vary in price, production practices, labeling claims, packaging, product color and appearance.

Key Findings:

- Overall, consumers report price, safety and taste as the most important factors they consider when purchasing eggs.
- There is some potential for greater market share for cage-free eggs than what currently exists, but not a majority market share.
- More than half of egg shoppers are price sensitive showing little willingness-to-pay more for cage-free.
- Removing the option to buy affordable, conventionally-produced (chickens in cages) eggs significantly increases the share of consumers not buying eggs altogether.

7. **Green House Gas Emissions**

The fact that GHG emissions from U.S. animal agriculture have remained relatively constant while meat, milk and egg production has increased dramatically results from large scale animal agriculture operations that have worked to improve feed efficiencies, better manure management

strategies and efficient use of cropland. Eggs consumed by the nation's consumers have increased 13% during the last decade. Yet the U.S. egg production has significantly decreased its environmental footprint in the past 50 years, according to A Comparative Assessment of the Environmental Footprint of the U.S. Egg Industry in 1960 and 2010. That report noted that the total environmental footprint in 2010 for egg production was 54% - 63% lower than the environmental footprint in 1960.

The good news is that conventional egg production is superior to cage-free systems on both ammonia and particulate matter ($PM_{2.5}$ and PM_{10}).

NH_3, $PM_{2.5}$, PM_{10} Emissions from Layer Systems

Ammonia

High rise caged systems mean averages for ammonia (NH_3) is 0.9 gm./hen/day.

Manure belt conventional cages had a mean average at 0.054gm/hen/day

Aviary (cage-free) at 0.22 gm./hen/day (2-4 times more ammonia in cage-free compared to conventional manure belt removal).

Particulate Matter 2.5 microns

$PM_{2.5}$ for high rise caged systems was 5.5 mg/hen/day

Manure belt caged systems was 2.8 mg/hen/day

Aviary (cage-free) was 12.3 mg/hen/day (2-4 times more in cage-free)

Particulate Matter 10 microns

PM_{10} for high rise caged systems 30.5 mg/hen/day

Manure belt caged systems was 20.3 mg/hen/hen

Aviary (cage-free) was 124.4 mg/hen/day (more than 6 times for cage-free).

Caged layers producing eggs improves the air quality thus improving the health of the chicken and the farm worker.

8. Benefits of Cages for Chickens

Researchers at the Egg Industry Center in Ames, IA found that today's hens are living longer due to better health better nutrition and better living environments. These researchers studied U.S. egg production over a 50-year period, from 1960 to 2010. Today's egg farmers are producing more eggs in 2010 than 50 years earlier. Using 1960 technology to produce the 2010 egg supply would have required 78 million more hens, 1.3 million more acres of corn and 1.8 million more acres of soybeans.

In comparison to 1960 technology, today's egg farmers using conventional cages are able to feed 72% more people.

9. <u>Specific Scientific Articles Supporting Modern Cage Production</u>

a. Adams, A.W. and M.E. Jackson, 1970. Effect of cage size and bird density on performance of six commercial strains of layers. Poultry Scio. 49:1712-1719

b. Anderson, K.E. and A.W. Adams, 1992. Effects of rearing density and feeder and waterer spaces on the productivity and fearful behavior of layers. Poultry Sci. 71:53-58

c. Anderson, K.E., A.W. Adams, and J.V. Craig, 1989. Behavioral adaptation of floor-reared White Leghorn pullets to different cage densities, cage shapes during the initial settling-in period. Poultry Sci. 68:70-78

d. Anderson, K.E. 2001. Welfare implications of cage density, population, and feeder space. 2001 Midwest Poultry Federation Convention. Touchstone Energy Place at River Center, St. Paul, Minnesota, March 14-15, 2001. Pp 164-170

e. Anderson, K.E. 2002, Final Report of the Thirty Fourth North Carolina Layer Performance and Management Test: Production Report. North Carolina Cooperative Extension, Raleigh, NC Vol. 34, No. 4. November 2002

f. Anderson, D.P., G.W. Beard, and R.P. Hanson, 1964. The adverse effects of ammonia on chickens including resistance to infection with Newcastle Disease virus. Avian Diseases 8:369-379

g. Al-Rawi, B. and J.V. Craig, 1975. Agonistic behavior of caged chickens related to group size and area per bird. Appl. Anim. Ethol. 2:69-80.

h. Craig, J.V. and AmM. Guhl, 1969. Territorial behavior and social interaction of pullets kept in large flocks. Poultry Sci. 48

i. Q.B. Kinder, A.B. Stephenson, 1962. Floor space requirements of S.C. White Leghorn hens. Poultry Sci. 41:1394-1400.

j. Occupational Safety and Health Administration, US Department of Labor. Permissible exposure level for ammonia, 29 CFR Sec. 1910.1000 Table Z-1 Limits for Air Contaminants

10. Conclusion

Farmers today know how to produce a safe and wholesome egg while caring for the health and welfare of the chickens. There are some egg farmers who have already invested in cage-free systems who do not want to change the law in California or other states (Massachusetts, Washington, Michigan, Nevada and Oregon in 2024; Arizona, Colorado 2025; Utah and Rhode Island 2030;) imposing cage-free mandates on the eggs sold. Animal rights groups also will

push back on rescinding these laws. The future of egg production will one day be right back to chickens in cages after the lessons that farmers learned five decades ago is successfully understood by consumers, legislators and regulators.

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