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Proposition 2: Putting Our Food Safety & Public Health At Risk

by Marcin Ossowski
Golin/Harris Public Relations

I. Introduction

This report is an analysis of the California egg-industry as it relates to the issue of food safety. It will specifically examine whether it is easier to control and prevent such diseases as *Salmonella* and Avian Influenza through the use of indoor housing systems, the current industry standard, or through the use of cage-free or free-range housing systems, the ultimate result if Proposition 2 passes. This conclusion of Proposition 2's ultimate outcome is based on the analysis submitted by the Legislative Analyst's Office, a nonpartisan and state-funded organization based in Sacramento, which concluded that the wording of the proposition would result in the implementation of "alternate methods for housing... [the] chickens".¹ That means that the only way the specifications could be met were if the entire egg industry moved from indoor housing systems to cage-free or free-range housing systems.

The contentious debate surrounding California Proposition 2 has resulted in claims that current policies in California egg-farming result in unsafe eggs. Though it is true that certain states lack truly efficient and vigilant supervisory programs to maintain food safety, California has a largely sterling record in monitoring its egg-farming sector by ensuring both high standards of cleanliness and humane treatment of the animals by keeping their density in the housing systems lower than in other states, thereby allowing the chickens to use the perches provided.

California's record in food safety speaks for itself. By trying to implement a law that directly undermines peer-reviewed and empirically tested research that has been continuously refined for the better part of a century, Proposition 2 would jeopardize our state's highly effective and regulated food safety system. This system is in place for a very good reason: every day, all across America, more than 200,000 people are stricken with food poisoning. Annually this translates to 76 million illnesses, 325,000 hospitalizations, and 5,200 deaths.² The truth is our country's food safety is constantly at risk – with poisonings, infections and

even deaths from foodborne pathogens, such as *Salmonella* contamination. There are well-attested methods for neutralizing these risks, and the claim that Proposition 2 will make our egg supply safer or more disease-free could not be further from the truth.

II. Food Safety Standards in California

California's agricultural industry is tightly regulated, with a variety of strict environmental and health measures in place. Egg farmers in our state have to adhere to these regulations, many of which are more comprehensive than in other egg-producing states. The food safety management practices of California egg producers are among the most successful in the United States and are directly credited for drastically decreasing *Salmonella* prevalence in consumers.³

These management characteristics include the use of the California Egg Quality Assurance Plan, or CEQAP. Initiated in 1994, CEQAP is a pathogen reduction program for *Salmonella* and in California, 98 percent of egg farms adhere to the toughest, most stringent food safety standards in the U.S. under the program.⁴ CEQAP is comprised of university and extension researchers, state and federal health and agricultural officials, private poultry veterinarians, egg producers and processors, and egg association representatives.⁵

The voluntary efforts of California's individual producers in conforming to CEQAP standards ensure that the continuing production of safe and sanitary eggs on California egg farms is a near-certainty. According to the California Department of Public Health, CEQAP standards have been credited with helping control egg-associated *Salmonella Enteritidis* infections in California. While there has not been a reported case of *Salmonella Enteritidis* linked to California eggs in nearly a decade,⁶ *Salmonella* contaminated eggs coming from other states sicken 118,000 Americans each year, according to the U.S. Centers for Disease Control and Prevention.⁷

In addition, a 2004 study of California egg farms in the peer-reviewed journal *Avian Diseases* finds comparatively low *Salmonella* prevalence in indoor housing systems, commonly used in California, as compared to cage-free and free-range housing systems. The researchers state that this low *Salmonella* prevalence in California egg farms reflects the "distinct geographic, climatic, production and **management characteristics**"⁸ of the state's egg farms (emphasis added).

This California study also stated that the use of testing procedures on California farming facilities "assist individual producers to validate the core components of their pathogen reduction programs for [*Salmonella*] by applying process control principles,"⁹ ensuring that California egg farmers stay one step ahead of the pathogens, keeping the food they supply to California families as safe as possible.

An equally important core component of California's pathogen reduction program is the process of tracing an outbreak of foodborne illness to its source. Known as a "traceback," it is conducted by the Food and Drug Administration (FDA) and helps to maintain a safe food supply. The FDA's guidance to its staff for conducting tracebacks has lengthy sections entitled "Farm Investigations" and "Egg Processor/Packer Investigations." These sections contain detailed protocols explaining who goes on the farm, how the investigation is carried out, biosecurity procedures and other important steps to ensure that should an outbreak from eggs occur, the traceback would successfully reveal the original source.¹⁰

The FDA document "Guide to Investigation of Eggs and Farms Implicated In Foodborne Outbreaks of *Salmonella Enteritidis*" even states that the FDA "is focusing their efforts on achieving the reduction and eventual eradication of egg related [*Salmonella Enteritidis*] illness in humans" and that they are doing so "by conducting traceback and farm investigations in order to determine the source of the eggs and the contamination."¹¹

III. Salmonella in California

The principal mode of *Salmonella* contamination occurs after the hens have laid their eggs where the source of infection is the environment, usually when the laid egg comes in contact with feces or waste. Thus another way the California egg industry has been successful in decreasing *Salmonella* prevalence is through the implementation of measures separating hens from their feces and waste in modern housing systems.

The scientific consensus clearly states that eggs laid by hens in modern housing systems have a lower prevalence of *Salmonella* across the board than those laid by free-range and cage-free-range hens. In fact, the most sanitary housing systems are those that separate hens from their waste and keep the eggs as clean as possible.

The journal *Avian Diseases* conducted a study of one California egg farm in 1996, examining a statistically significant sample of egg laying hens. This study found that the prevalence of *Salmonella* in the hens kept indoors in modern housing systems was far lower than in the free-range hens. The study explicitly states, "The highest prevalence [was] in the free-range birds kept on the dirt floors."¹²

That's because hens in free-range systems live in an open environment and frequently lay their eggs in their own feces and waste, so eggs from free-range systems are typically more contaminated than those from cage systems.¹³ The researchers of the California study explain that the lower prevalence of *Salmonella* in the hens kept in modern housing units was due to better manure management and to minimal exposure from birds and rodents.¹⁴ In addition, previous research suggests that eggs from modern housing systems have superior structural integrity in their shells, allowing for greater resistance to penetration by the *Salmonella Enteritidis* pathogen and decreasing the risk of egg contamination.¹⁵ On the other hand, the infection of free-range hens in the California study was caused via the

“fecal-oral route through contamination of the feed through feces” from rodents that had easy access to these hens.¹⁶

In addition to being more vulnerable to exposure from rodents, free-range hens did not have the same level of manure management as those hens kept in modern housing systems. This is because the hens housed indoors had a manure belt that ran under their enclosures and transported the feces to collection receptacles, common to modern housing systems in California.¹⁷ On the other hand, according to a report by the *Rural Industries Research & Development Corporation*, the total number of bacteria on free-range eggs is 15 times greater than that found on eggs from modern housing systems.¹⁸ This alarming figure is entirely due to the fact that eggs produced in free-range systems are in closer proximity to feces and potential infectious agents.

Furthermore, there is a wealth of scientific literature that clearly states free-range hens are far more susceptible and vulnerable to infection from rodents and various species of wildlife.

- The California study even notes that “feral cats, rodents, skunks, opossums, wild birds, and other wildlife” were seen near the free-range hens’ feeding areas, and that rodents “were considered to be the biological vectors and amplifiers” of *Salmonella* on the egg farm in the study.¹⁹
- The *Rural Industries* report also postulates that the very construction of the indoor housing systems precludes the possibility of poultry and rodents existing closely, thereby potentially decreasing the possibility of cross-infection.²⁰
- A 2003 study from the *Journal of Applied Microbiology* uses genetic mapping to conclude that wildlife species are the most virulent intruders on egg farms, and that these species serve as highly pathogenic vectors of *Salmonella*.²¹ The researchers of the study specifically state that their study provides “definitive molecular evidence for the involvement of several wildlife species in the maintenance of [*Salmonella*] *Entititidis* infection on farms.”²² This conclusion that wildlife species are particularly dangerous vectors for *Salmonella* is shared by another study published in the journal *Applied and Environmental Microbiology* that collected data from a period of more than 30 years.²³

As evidenced by the studies above, not only are eggs from free-range systems typically more contaminated than those from modern housing systems but also free-range hens are at a greater risk for *Salmonella* infection as they are far more vulnerable to exposure from wildlife species and rodents.

IV. Avian Influenza (Bird Flu) in California

The threat of an Avian Influenza, or Bird Flu, epidemic remains very real, with outbreaks occurring all over the world, including the United States. Consider these outbreaks in the past several weeks alone:

September 04, 2008 - the *Associated Press* reports that Idaho Department of Agriculture officials quarantined a Boise bird farm after a strain of Bird Flu was identified. The virus at the Idaho farm was classified as the H5N8 strain. According to the AP, the birds were kept in an outside pen area and could have been exposed to the virus through droppings from a wild bird flying or roosting overhead.²⁴

September 09, 2008 - the *Associated Press*, *USA Today*, and *Reuters* all report that an outbreak of Bird Flu has been confirmed in the West African nation of Togo.²⁵ On September 16, 2008 the *Associated Press* reports that the Bird Flu outbreak in Togo was in fact the deadly H5N1 strain, which has scientists concerned because it has the potential to infect humans.²⁶

August 26, 2008 - the *Times India* reports in Bangladesh that "the bird flu virus, that caused India's worst Avian Influenza (AI) outbreak this year, has been found to be 'a lot similar' to the one that created havoc in Bangladesh. The H5N1 outbreak that broke out in West Bengal in January this year, spread to nearly 13 of the state's 19 districts. The H5N1 virus was first detected in Bangladesh in March 2007. Since then, over 47 of the country's 64 districts had been affected by bird flu."²⁷

Most human cases have been linked to contact with infected birds, but health experts worry the virus could mutate into a form that passes easily among humans, sparking a pandemic that could prove dangerous and overload health care systems.

Since hens housed in cage-free and free-range housing systems have access to the outdoors, it substantially increases their risk of exposure to **Avian Influenza (AI), Exotic Newcastle Disease**, and other diseases from wildlife species of birds, according to the United States Animal Health Association, just as it increases their chance of exposure to *Salmonella*.²⁸

There are many studies that re-iterate the claim that backyard or outdoor flocks are specifically at an increased risk for Avian Influenza infection. A study published in *Avian Pathology* in 2007 concludes that their "findings confirm that backyard free-range farming is at high risk for Avian Influenza virus introduction," largely from contact with wild waterfowl in the winter months.²⁹ A 2008 study from *The Journal of General Virology* also confirms the need to continue "to monitor backyard poultry at live poultry markets to better understand interspecies transmission and the emergence of novel influenza viruses that have the potential to infect humans."³⁰

Finally, according to the World Health Organization, transmission of Bird Flu from poultry to humans results in “very serious disease” and “could mark the start of a global outbreak (a pandemic).”³¹ In order to avoid such a potentially disastrous pandemic, it is important to allow the California egg industry to continue adhering to its strict safety guidelines to keep California consumers safe and healthy.

V. Food Safety and Animal Welfare Standards in California

Scientific consensus is clear that maintaining an egg industry where the infrastructure and procedures are highly ordered, well maintained, sanitary and informed by sound evidence is most beneficial to humans and hens alike. These guidelines ensure that California’s egg industry maintain the highest standards of food safety.

Developing responsible management criteria has been a primary concern of California egg farmers for years. Working with the foremost animal scientists, they have developed leading egg production methods to ensure that fundamental components of sound animal care are provided to egg-laying hens: optimal feed, light, air, water, space and sanitation for egg-laying hens.³²

These sound methods are a direct result of the United Egg Producers’ development of the first industry guidelines in the early 1980’s, followed by the commission of the independent Scientific Advisory Committee for Animal Welfare in 1999.³³ The guidelines developed by this committee resulted in the UEP certification program, and now approximately 95 percent of California’s egg farmers are UEP-certified.³⁴ Certified farmers must place top priority on health, safety, and comfort of their hens and submit to independent United States Department of Agriculture (USDA) audits.³⁵

Because the indoor housing systems that egg-laying hens are kept in are clean, sanitary and biosecure, antibiotics are used only when the animals are sick and in need of care. In fact, antibiotics are prohibited in feed unless administered for therapeutic reasons (disease treatment) and then only under direction of a veterinarian.^{36 37} Furthermore, hormones are not given to *any* egg-laying hens under any circumstances.³⁸

VI. Conclusion

Under political pressure and facing criticism by many of California’s leading food safety and public health experts, the Yes on Proposition 2 campaign recently released a political paper entitled “The Public Health Benefits of Proposition 2: An Evidence-Based Analysis.” These campaign materials are based on highly questionable research, and their claims are scientifically unsubstantiated and insupportable. These materials include such claims that poor food safety management has led to increased susceptibility to disease in hens (disproved in section II. of this paper), modern housing systems entail higher risk of *Salmonella* infection in the hens (disproved in section III. of this paper), and that the passage of Proposition 2 will reduce the chance of a human influenza pandemic (disproved

in section IV. of this paper). In addition to these contentious statements, following are some of the more egregious claims and conclusions that the Yes on Proposition 2 campaign makes in their political paper.

Particularly misleading is the statement that egg-laying hens kept in modern housing systems are more prone to *Salmonella* infection, jeopardizing the safety of the food supply and the integrity of the public health system. A European Union (EU) study by the *European Food Safety Authority* that is frequently cited in the political paper is used to support this claim, with the paper stating that this EU study is the “best available data set” and concluding that “there was significantly higher risk of *Salmonella* infection in hens confined in cages.”³⁹ In reality, the conclusions of the EU study indicate only *Salmonella* contaminated environments and not necessarily infected hens.⁴⁰ Establishing a causative relationship between the two is complicated by a wide variety of factors, including flock size and housing types.

The EU study addresses these confounding factors in its analysis, actually stating that “caged flocks typically belonged to the larger holding and flock size categories, and there was a strong correlation between the flock type and the size characteristics... [so that] holding size might be a major risk factor for *Salmonella* infection.”⁴¹ Flock size is revealed to be a potential risk factor for infection, and the EU study’s summary concludes that “it was not possible to determine which of these two factors was a true risk factor for positivity.”⁴² Therefore flock size proves to be a confounding variable and the study cannot state with certainty which was the truer risk factor for positivity: flock size or housing type. Thus the EU study is in fact inconclusive, and does not represent the “best available data set” that concludes that hens kept in modern housing systems are at a greater risk for contracting *Salmonella*.

The EU study is further confounded by the fact that the drag swab and culture methodology employed does not necessarily guarantee illness in the case of casual exposure; it only reveals that the pathogen is present somewhere in the environment. It does not guarantee that hens or eggs are contaminated or that public safety is jeopardized, and indeed factors such as “host susceptibility, bacterial dose, [and] food-preparation practices [...] play important roles” in the prevalence of significant clinical illness.⁴³ The presence of *Salmonella* around the egg production system does not necessarily entail that hens or eggs will be infected by the pathogen.

The Yes on Proposition 2 political paper cites two other studies from Europe that allegedly show “without exception... a significantly higher risk of *Salmonella* among hens raised in battery cage production units.”⁴⁴ However, closer examination of these studies reveals that their results were also inconclusive:

- The 2007 study of French laying-hen houses stated that the confounding factors were serious enough to “consider these [housing] systems as two different subpopulations.”⁴⁵

- The 2007 Belgian study of laying hens similarly stated that its confounding factors were serious enough to consider the presence of a “problem due to sample size.”⁴⁶

Additionally, the Yes on Proposition 2 political paper states that a 2004 California survey “found that 9 out of 10 egg operations were contaminated with *Salmonella*, up from 6 out of 10 in the previous census performed in 1995-1996.”⁴⁷ This is certainly an unsound conclusion, as the 2004 survey they cite clearly states that the “overall [*Salmonella*] *entritidis* prevalence for California flocks was 10.5%,” or 14 out of 133 instances, and *not* the 9 out of 10 instances the report claims.⁴⁸ The study further states that the “distribution of the 10 most commonly isolated *Salmonella* serotypes in this study has not appreciably changed from the previous egg-laying farms survey in California [in 1995-1996].”⁴⁹ This further contradicts the claim in the political paper that the years of 1995 to 1996 saw a prevalence rate of 60% (6 out of 10 instances), demonstrating another incorrect conclusion in the report based either on faulty analysis of the source materials or misrepresentation of the information in the references.

Finally, another misleading claim in the Yes on Proposition 2 political paper is that an issue of *Public Health Reports* concluded that “[b]ackyard flocks were at significantly *lower* risk of [Avian Influenza] infection than... large-scale commercial operations.”⁵⁰ The data was from a massive survey of poultry flocks in Thailand in 2004. However, another analysis of the same data from *The Journal of Infectious Diseases* in 2007 actually found the difference between backyard flocks and commercial hens to be statistically insignificant as there was a wide-scale Avian Influenza epidemic in Thailand at the time. The study specifically states that although backyard flocks had lower Avian Influenza rates than “that of laying hens and broiler chickens... this difference was not statistically significant.”⁵¹

Not only were the numbers that the Yes on Proposition 2 campaign purported to be the “best available data” inaccurate and not robust enough to draw conclusions from, but this is further proof that a food safety system as stringent as the one that California egg farmers follow is necessary to avoid Avian Influenza epidemics that affect the entire poultry population and potentially poison humans.

However well-intentioned, Proposition 2 is risky, dangerous and, from a food safety and public health perspective, scientifically unfounded.

The proponents of Proposition 2 say this is a “modest” measure, but quite the opposite is true. It is wide-sweeping, onerous and extreme.

By arbitrarily altering space configurations on California egg farms, Proposition 2 effectively bans *all* egg production in California. The industry that has kept California egg consumers safe for the past decade – and has done so by listening to the sound advice of scientists, researchers and experts – will be driven out of business. California consumers will have no

affordable options to purchase or consume locally-produced fresh eggs. Instead, they will be forced to rely on imported eggs, trucked in from out-of-state or Mexico, where food safety standards are not as high.

Furthermore, The Yes On Prop 2 campaign also equates the California egg industry with large-scale factory farming, when in fact the majority of California egg farms are still run by families or small to medium-sized companies. The Yes on Prop 2 campaign really has an ulterior motive. It is largely funded and staffed by a special-interest group known as The Humane Society of the United States (HSUS) that has a very extreme vegan and anti-agriculture agenda. The HSUS openly fraternizes with two other strident vegan organizations: People for the Ethical Treatment of Animals (PETA) and Farm Sanctuary, both of which have contributed significant funds and campaigned in support of Proposition 2. California has long been known as a trendsetter in propositions that concern social issues, and by setting their campaign in California, it will allow them to set the bar high and test their campaign strategy. Despite being touted as a public health argument, the Yes on Prop 2 campaign is really fighting a social issue that is really more about personal choice.

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SAFE – SAFE, AFFORDABLE and FRESH EGGs

Californians for SAFE Food, a coalition of public health and food safety experts, labor unions, consumers, family farmers and veterinarians.

Supported by Moark, LLC and Cal-Maine Foods.

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