An analysis of the feasibility and efficacy of the *Prevention of Farm Animal Cruelty Act* in California

By Katlin M. Parker

Environmental Policy Thesis

Environmental Studies Department

California State University, Sacramento

May 18, 2015
Abstract

This project analyzes the feasibility and efficacy of the portion of California’s Prevention of Farm Animal Cruelty Act (HR 4733) that pertains to egg laying hens. The law requires that cages for egg laying hens in California, provide at least 116 in$^2$ of space per hen. Prior to the law, hens were only allotted 67 in$^2$ (Ibarburu, 2014). The ease of implementation of the law; specifically, the different options for farmers complying with the law, the predicted costs for consumers, and potential changes in the market due to the implementation of the new law, are used as indicators of feasibility. The efficacy of the law was indicated by any significant improvement in the mental and physical health of the hens, as well as reduced levels of Salmonella in chicken eggs. The primary goal of this analysis was to assess the ability of the law to ensure that egg laying hens in California are provided with humane care. Several different types of documents and studies were used to evaluate these aspects of feasibility and efficacy. It was determined that larger cages improve mental and physical health in egg laying hens, and reduce the presence of Salmonella (AB 1437; Baxter 1994). Implementation of the law was feasible for most California egg farmers, the average price increase for consumers is less than $14.10 per person/year (Capital Press, 2015), and the law has initiated significant changes in the U.S. egg market (Westervelt, 2015).
# Table of Contents

Abstract ................................................................................................................................. 1

Table of Contents .................................................................................................................. 2

Introduction ............................................................................................................................ 3

Ease of Implementation ......................................................................................................... 5

Expected Cost for Consumers .............................................................................................. 6

The Changing Egg Market .................................................................................................... 8

Improving the Mental and Physical Health of Egg Laying Hens ....................................... 9

Reduction of *Salmonella* Present in Egg Laying Hens ..................................................... 11

Conclusion ............................................................................................................................ 12

Figure 1 ................................................................................................................................. 14

Table 1 .................................................................................................................................. 15

References ............................................................................................................................. 16
Introduction

Animal welfare standards for livestock are inadequate. In most cases, animals raised for food undergo abuse on a daily basis, in the form of confinement, mutilation, and even in the way they are fed (Humane Society of the United States, 2015). In the past decade, California law-makers have made significant advances in the protection of farm animals, ranging from the ban on tail docking of dairy cattle (SB 135) to the prohibition of the production, sale, and import of foie gras (SB 1520).

In 2008, 63.5% of California voters, elected to implement the Prevention of Farm Animal Cruelty Act (Humane Society International, 2011; HR 4733). On January 1, 2015, the act became law in California. The landmark law requires that all egg laying chickens, breeding sows, and veal calves be allowed to fully extend their limbs, lie down, stand up and turn around freely. California was the first state to initiate a ban on battery cages, and was followed by Michigan and Ohio (Humane Society International, 2011).

For egg-laying hens, the updated space requirement is set at no less than 116 in\(^2\) per hen; which is about 73% more room than they were allowed prior to January, 1 2015 (Ibarburu, 2014). Conventional “battery” cages are a minimum of 67 in\(^2\) and were the required minimum cage size in California before the law was passed. Battery cages are still the most commonly used cages for egg laying hens in the United States (Humane society International, 2011).

Although the Prevention of Farm Animal Cruelty Act only applies to animals that are raised in California, accessory bill 1437 requires that all eggs sold in California, regardless of where they are produced, must comply with the regulations set in the Prevention of Farm Animal Cruelty Act. About one-third of shell eggs consumed in California are already
imported from other states (Bunge, 2014). Without the enactment of AB 1437, states, which are able to produce and export eggs at a lower price, would likely have excluded California farmers from the market completely.

The goal of this project is to analyze the feasibility and efficacy of the portion of the Prevention of Farm Animal Cruelty Act that pertains to egg laying hens. By analyzing the statute, insight will be gained about implementation of future laws that may go into effect in California and other states. Evaluating the efficacy of the law will establish if there has been any improvement in the welfare of the hens. Another relevant component of efficacy is the evidence of any noticeable improvement in the mental and physical health of the animals, as this was the reason for enacting the law.

To evaluate the feasibility and efficacy of the Prevention of Farm Animal Cruelty Act, several different types of documents were analyzed. Feasibility is defined as the ease of implementation of the law; specifically, the different options for farmers complying with the law, the predicted costs for consumers, and potential changes in the market due to the implementation of the new law. Efficacy is defined as any significant improvement in the mental and physical health of the animals as well as any significant reduction in the presence of Salmonella.

This project will provide essential information about the Prevention of Farm Animal Cruelty Act that will be of use for assessment of future laws of this nature. Such laws include improved animal welfare standards for chickens and other livestock in other states as well as standards for animals in California. Evaluating feasibility and efficacy will allow determination of whether the law is adequate or if animal welfare standards for egg laying hens need further improvement. The principal goal of the project is to assess the ability of
the law to ensure that egg laying hens are not suffering needlessly, and are being provided with humane care.

**Ease of Implementation**

When AB 1437 passed in 2010 to accompany the *Prevention of Farm Animal Cruelty Act*, farmers in the business of producing eggs to be sold in California had four basic options. The first option was to exit the egg industry completely. The second option was to stay in the egg business and sell to states other than California. In fact, state legislators were aggressively pursuing California egg producers, trying to persuade them to come to their states (Etter, 2010). In 2010, legislators from Idaho and Nevada tried to lure California egg farmers to their states with the promise of leniency in the matter of the law. Most other states require a minimum cage size requirement of 67 in², which would mean that California farmers moving to those states would not have to change production practices. Even with the enticing promise of less restrictive egg production standards, the majority of farmers in California did not pick move to another state; rather they decided that it would have been too expensive and too risky to relocate (Etter, 2010).

The third option for California egg farmers was to comply with the new law by eliminating part of their flocks to create more space in their existing cages. This method of compliance is less expensive for farmers on a short term time scale (Ibarburu, 2014). A spokesperson for the National Association of Egg Farmers, Ken Klippen, stated that implementation of compliant cages could cost more than $40 per hen (Lee, 2014). To avoid this extra expense, farmers slaughtered up to 40% of their flocks (Westervelt, 2015). The problem with this option is that the lower production rate for farmers would result in a
decrease in value for virtually every aspect of the farm. Equipment, land, roads and other fixed costs would be diluted in fewer eggs, which would decrease profit margin and increase the price of each dozen eggs sold (Ibarburu, 2014).

The fourth option for farmers would be to invest in their business by replacing their conventional cages with cages that meet the new space requirements. By replacing existing cages, farmers would be able to maintain the current number of hens on their farm and therefore keep production constant. Farmers who choose to stay in the business and comply with the new law face an average increase in expenses of about 15% regardless of which method they choose to comply by (Ibarburu, 2014).

When AB 1437 passed in 2010, many farmers in California and those exporting to California began updating their cages to comply with the new law. For example, an egg producer in Arizona updated their facility- which holds about 2 million hens- to meet California standards (Lee, 2014). Likewise, Farm Fresh Foods, located in Santa Ana, California, receives the majority of its eggs from a farm in Iowa which had its cages updated and ready for distribution to California two months before the law went into effect (Lee, 2014). More eggs are consumed in California than in any other state in the nation, with one-third of the supply being imported from other states (Bunge, 2014). Perhaps this is why many farmers perceive the effort of updating their cages to be worth it.

**Expected Cost for Consumers**

Based on newspaper, journal articles and other media sources following the new law, it is reasonable to predict that residents of California may have experienced moments of doubt regarding their “yes” vote for the *Prevention of Farm Animal Cruelty Act*. News
regarding a predicted substantial price increase for eggs and a potential shortage of eggs due to farmers being restricted from selling them has been significant issues discussed in the media. Writers for KCET, an independent television station in California, as well as such newspapers as Feedstuffs and The Guardian have published articles regarding these ideas (Ungerleider, 2015; Lee, 2014; Westervelt, 2015).

From all of the negative media surrounding this new law, consumers probably expect to see a sizable increase in the price of their standard dozen eggs at their local grocery store; however the projected price increase per dozen eggs was $0.27 (Ibarburu, 2014). Considering the average shell egg consumption in the U.S. is 180 eggs/person-year, this would mean a $4.05 increase per person-year (Ibarburu, 2014) (Fig. 1, Table 1.). Even for a family of four, the added annual cost from this new law would be $16.20 per family (Ibarburu, 2014). Since more eggs are consumed in California than in any other state, the average of 180 eggs per person, per year is likely too conservative. To get an idea of the projected price increase of eggs for heavier consumers of eggs, double the U.S. average shell egg consumption to 360 eggs/person-year. This would amount to an $8.10 increase/person-year and for a family of four, a $32.40 increase/family-year (Fig. 1, Table 1.). Even when the average amount of eggs consumed is doubled, the financial burden on the individual consumer is still less than a minimum wage employee in California makes in one hour. It is still notable, however, that the level of price increase is subjective and the amount could affect the demand for eggs from low-income families or from individuals who currently consume far beyond the average amount of eggs (Ibarburu, 2014).

In January 2015, the average price of one dozen large eggs was $2.37 (Capital Press, 2015). Compared to $1.43 in January 2014, the price has increased by $0.94 (Capital Press, 2015).
If the price did not increase further, then consuming 180 eggs/year would entail a $14.10 increase per person/year. The current increase in price is likely only temporary, however. Eggs are essentially worth more to producers and as a result, more cages are being updated to fit the new standards, providing more compliant eggs each week (Hearden, 2015). Once production meets demand, the price of eggs will likely moderate.

**The Changing Egg Market**

Shell eggs are an inelastic commodity; consumers will continue to purchase them regardless of a change in price, likely due to the fact that there are not many substitutions for eggs (Lee, 2014). There are substitutions such as liquid eggs or various vegan egg products; however, there are certain recipes that simply cannot be made without real eggs (*Cook’s Illustrated*, 2013). For example, angel food cake, soufflés, and meringues cannot subsist without real, fresh eggs (*Cook’s Illustrated*, 2013). In terms of price, shell egg substitutes are typically equal to or higher than shell eggs (*Cook’s Thesaurus*, 2005). Even with the current increase in price, shell eggs, along with milk, are still one of the least expensive sources of high quality protein available (*Centers for Disease Control*, 2012).

Even though producers had six years to update their cages, egg shortages in California were still predicted (Carswell, 2014). Although the supply may vary, the demand for shell eggs will likely remain unchanged in California and in other states as well (Lee, 2014). There will, however, still be an inevitable change in the nation’s egg market, with eggs that meet California’s standards primarily being distributed in California. Since the demand will be high and the eggs will essentially be worth more in California, farmers with cages that comply would not want to waste their supply by selling to states that would pay...
less. Producers located on the east coast who did not previously sell eggs to California are now making an effort to transport eggs there to take advantage of high buying prices (Bjerga, 2014). This fact should not significantly affect the nation’s supply of eggs, however, because there will be some farmers who will choose not to update their cages, and instead sell only to other states besides California (Lee, 2014).

Another critical aspect of the changing egg industry is the decreasing price gap between standard eggs and cage-free eggs (Westervelt, 2015). This reality has the potential to change the egg industry indefinitely. In fact, this idea influenced several farmers who chose not to comply with California’s new cage size standards. Farmers predicted that consumers would ultimately demand cage-free eggs as time went on and did not want to spend money to update their cages if the law was going to evolve even further in a few years. The difference in price for standard eggs versus cage-free eggs is a few dollars on average and consumers have expressed that they are willing to pay this difference if it means that the hens are treated with more humane care (Westervelt, 2015). This situation is similar to one that occurred in the European Union in 2012. Farmers updated their cages to “enhanced colony cages” and before long, animal activists were advocating for them to convert to cage-free systems. (Westervelt, 2015)

**Improving the Mental and Physical Health of Egg Laying Hens**

The majority of egg laying hens in the United States are confined to conventional battery cages, which allow hens approximately 67 in² each (Humane Society of the United States, 2015). Battery cages are the most restrictive poultry production system in the United States (Appleby, 2004). Until the Prevention of Farm Animal Cruelty Act was passed
on January 1, 2015, this was how most of the hens in California were housed as well. Now, caged hens are required to have a minimum of 116 in$^2$ each, which is essentially enough room for them the stand up, lie down, turn around freely and fully extend their limbs (HR 4733). This specific space requirement was chosen by animal welfare experts at the University of California, Davis (Charles, 2014).

The addition of more room was necessary to improve the welfare of egg laying hens (Charles, 2014). Hens in battery cages are unable to move around and consequently lose strength in their bones and muscles. As a result of this debilitation, hens often break their bones (Baxter, 1994). These incidences are painful and unnecessary, as they could be easily avoided by allowing hens enough room to maintain their strength. Hens in enriched cages have significantly higher bone mineral density compared to hens in conventional cages (Tactacan, 2009).

The new law provides hens in California with 116 in$^2$ per chicken; 73% more room than they were allocated before the law was passed. The extra room allows for chickens to “turn around freely, lie down, stand up and fully extend their limbs” (Etter, 2010). Animal activists would argue that 116 in$^2$ is still not enough room for hens but is a step in the right direction. Many critics still believe that raising hens in a pasture-centered environment would be the most humane option for poultry production (Westervelt, 2015). The Humane Farm Animal Care Certified Humane® “Pasture Raised” label requires that hens have 108 ft$^2$ per bird and that they are outdoors year-round. The label also requires that the hens have a safe place to go at night to hide from predators. This label is often compared with the Humane Farm Animal Care Certified Humane® “Free Range” label which only allots hens 2 ft$^2$ per bird. Still, Humane Farm Animal Care Certified Humane® “Free Range” is a more
humane production system and provides more space than conventional cages at 67 in$^2$ and even California’s standard cages at 116 in$^2$ (*Certified Humane*, 2014). Both pasture raised and free range systems provide hens with enough room to exhibit natural behaviors such as preening, feather ruffling and wing flapping (Appleby, 2004). Battery cages are simply too small for housing egg laying hens without jeopardizing animal welfare (Charles, 2014).

**Reduction of Salmonella Present in Egg Laying Hens**

Many consumers believe that there is a correlation between food safety and animal welfare (Norwood, 2013). When basic physical needs are met and animals are allowed to perform natural behaviors, they are healthier (AB 1437). Although there are many factors to consider when it comes to determining the safety of food, humane living conditions for livestock typically improves the safety of the meat and dairy products derived from those animals (AB 1437).

*Salmonella* is the second most commonly reported foodborne illness in the United States (*Centers for Disease Control*, 2014). One of the most common ways of contracting this bacterial disease is through consumption of chicken eggs (*Egg Safety Center*, 2010). Chicken eggs are 90% sterile when laid (*Egg Safety Center*, 2010), meaning that contaminated eggs are likely subjected to pathogens existing within their environment. Pathogens are more likely to spread between hens when the hens are closer together. The rate of salmonella in eggs from caged hens is significantly higher than that of eggs from cage-free hens (*Humane Society International*, 2011).

Pathogenic contamination of eggs is also correlated with high stress levels of chickens (AB 1437). When hens are stressed, their immune systems are compromised
which makes them vulnerable to pathogens in the environment (Humane Society International, 2011). Since California compliant hens are awarded 73% more room than hens in conventional cages (Ibarburu, 2014), they are less stressed and less close to one another (Appleby, 2004). These facts suggest that eggs produced from hens in California compliant cages may harbor fewer pathogens than eggs produced by hens in conventional cages.

**Conclusion**

The main goal of this analysis of the Prevention of Farm Animal Cruelty Act was to assess the ability of the law to ensure that hens producing eggs for California are being provided with humane care. In addition, several aspects of feasibility were assessed. Finally, there was analysis of Salmonella levels in hens living in different types of production systems.

Hens are able to better express natural behaviors in the 116 in$^2$ cages required in California, compared to conventional cages (Charles, 2014). Evidence in this analysis supports the idea that hens with enough room to perform natural behaviors are less stressed, have a lower incidence of bone breakage, and are less likely to carry Salmonella (AB 1437; Baxter 1994)

In the analysis of feasibility, different methods for egg producers to conform to the law were discussed. Many farmers chose to update their cages rather than exit the egg business or sell to states other than California (Lee, 2014). Other aspects of feasibility that were assessed were the changing egg prices for consumers in California as well as potential changes in the egg industry. Although there is evidence of a price increase for consumers,
the average increase is less than $14.10 per person/year (*Capital Press, 2015*). The law has initiated change within the U.S. egg market, including the possibility of a mandatory cage-free requirement for egg laying hens (Westervelt, 2015).

This analysis supports the idea that the Prevention of Farm Animal Cruelty Act was feasible and effective. Providing larger cages for egg laying hens improves the mental and physical health of the hens and the people consuming their eggs, without having detrimental effects on the economy.
Figure 1. A projection of the average price increase for consumers in California, using the U.S. average- 180 eggs/person-year and twice the average to represent heavy users of eggs- 360 eggs/person-year.
Table 1. Projected price increase for consumers, using the U.S. average egg consumption-180 eggs/person-year and twice the average to represent heavy users of eggs- 360 eggs/person-year.

<table>
<thead>
<tr>
<th></th>
<th>180 Eggs Consumed/year-person</th>
<th>360 Eggs Consumed/year-person</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.27/Dozen Increase Per Person</td>
<td>$4.05</td>
<td>$8.10</td>
</tr>
<tr>
<td>$0.27/Dozen Increase for Family of 4</td>
<td>$16.20</td>
<td>$32.40</td>
</tr>
</tbody>
</table>
References


Centers for Disease Control, 2012, Protein. Available at: http://www.cdc.gov/nutrition/everyone/basics/protein.html


Cook’s Illustrated Online, February 1, 2013, Processed Egg Whites. Available at: https://www.cooksillustrated.com/taste_tests/580-processed-egg-whites


Ungerleider, Neal, January 5, 2015, California’s New Egg Law, *KCET*. Available at: http://www.kcet.org/living/food/the-nosh/californias-new-egg-law.html