

Economic Effects of Proposed Restrictions on Egg-laying Hen Housing in California

July 2008

University of California Agricultural Issues Center

Daniel A. Sumner, J. Thomas Rosen-Molina, William A. Matthews,
Joy A. Mench and Kurt R. Richter

Sumner is the director of the University of California Agricultural Issues Center (AIC) and the Frank H. Buck Jr. Professor in the Department of Agricultural and Resource Economics, UC Davis. Rosen-Molina is a research analyst and Matthews is a post-doctoral fellow at AIC. Mench is a Professor in the Department of Animal Science and the director of the Center for Animal Welfare, UC Davis. Richter is a Ph.D. student in the Geography Graduate Group at UC Davis and a research assistant at AIC.

This research was supported with University of California funds. AIC did not seek or receive any outside financial support for this project.

Economic Effects of Proposed Restrictions on Egg-laying Hen Housing in California

July 2008

University of California Agricultural Issues Center

Executive Summary

A ballot initiative in California that would place restrictions on the housing of commercial egg-laying hens is scheduled for the fall 2008 election. The specific wording of the initiative is imprecise. Nonetheless, informed expectations and careful assessments are that, if passed, the resulting regulations would eliminate the use of cage systems for laying hens in California and may be even more restrictive. If passed, the initiative would mean that remaining egg production in California would be from non-cage systems and could mean that typical non-cage systems would be restricted as well. The restrictions imposed by the new policy would take effect at the beginning of 2015, allowing about six years for adjustment.

The California egg industry has a significant role in California agriculture. It produces almost five billion eggs per year from almost 20 million laying hens. Value of production was about \$213 million in 2006, and about \$337 million in 2007, due to much higher egg prices. Major production comes from San Diego, San Bernardino and Riverside Counties in Southern California; Merced, Stanislaus and San Joaquin Counties in the Central Valley; and Sonoma County on the North Coast. Production in California has declined substantially since its peak of about nine billion eggs in 1971, when California was shipping eggs to out-of-state consumers. In 2008, California is a substantial net importer of eggs produced in other states, producing about six percent of the national total of table eggs and consuming about 12 percent, based on population share. Shipments into California come from a broad portfolio of states including

Iowa, Minnesota, Utah, Missouri, Michigan and several other important sources. A large share of the eggs shipped into California are in liquid form, but about one third of the shell eggs consumed in California are produced out of the state. The relative size and competitive position of the California egg industry are important factors in understanding the likely economic impacts of the initiative.

Non-cage production does occur now in California and in other U.S. states. However, the share of non-cage production is quite small, about 5 percent of the total, including the non-cage eggs that also qualify as organic. (Organic production imposes a number of additional production limits, including the use of organic feed and limits on the use of medicines.) Despite its limited share of production and consumption, a variety of different non-cage systems are in use, and data on the costs of production, prices and marketing in these systems are limited.

The best evidence from a variety of sources suggests that (non-organic) non-cage systems incur costs of production that are at least 20 percent higher than the common cage housing systems. The sources of these added costs per dozen range across the major categories including: (a) higher feed costs (due to more feed consumption per laying hen and fewer eggs per laying hen), (b) higher laying hen mortality, which leads especially to higher pullet cost per dozen eggs amortized over the life of the flock, (c) higher direct housing costs per dozen eggs (because there are fewer hens per flock and fewer marketable eggs over the life of each hen entering the flock), and (d) higher labor costs (due to fewer hens per flock, fewer eggs per hen and more labor per dozen in gathering eggs). In making these assessments, we use cost information from farms that use both cage-free and typical cage systems. Such data allow more direct comparisons of costs than do data comparing specialized farms, which may have different scale economies and hence different costs per dozen eggs for reasons other than the housing system used.

Retail prices for non-organic non-cage eggs are at least 25 percent higher than those for eggs produced in cage systems, reinforcing the information from estimates of cost differentials. The 25 percent differential was measured in April 2008, at a time of very high retail prices for all eggs and when the differential between cage and non-cage eggs had declined. These retail price

comparisons apply to cage and non-cage eggs of the same grade, size, color and brand of eggs and sold in the same supermarkets. Average retail prices of non-cage eggs have often been double the prices of conventionally produced eggs, especially if one does not standardize fully for characteristics of the product and market considerations.

Despite transport costs of feed and of eggs, there is now a national market for eggs in the United States. Based on the evidence we have examined, the California egg industry competes vigorously with egg production in other states. This competition is indicated by the fact that shipments of eggs into California comprise a large and growing share of shell egg consumption in California, as well as the dominant share of liquid egg use in food service and food processing. Thus, any regulation or other factor that raises the costs of egg production in California relative to the cost of egg production in other states will strongly favor expansion of the share of out-of-state eggs in the California market. And, since the proposed restrictions on production methods apply only to eggs produced in California, the regulations implied by a successful initiative would raise costs of California producers by at least 20 percent relative to its out-of-state competitors.

The market impact of such a cost increase hinges on several facts outlined above and on some basic economic principles. First, with six years to adjust to the new market situation and given the less than the two-year life cycle of a typical laying hen flock, there is time for complete adjustments to expand production in other states so that they can meet the new market opportunities in California. Since national egg demand would not change significantly, the anticipated adjustment does not require additional pullets, additional feed or more inputs on a national basis. The relocation of egg production can be relatively rapid. Second, the new market opportunities for shipments into California entail an expansion of production in other states by less than 10 percent, which would be spread across many locations and farms that already have well-established relationships with buyers in California. The implication is that substantial new out-of-state egg supply could be forthcoming within a six-year horizon at little, if any, additional per-unit cost, and much less than the additional cost that a shift to non-cage housing would entail for California producers.

One consequence of the expansion of shipments of eggs into California at little additional cost is that prices to egg buyers and consumers would increase only slightly. Since more than a third of the shell eggs consumed in California already come from out-of-state, because expansion of production in other states would not entail additional per-unit costs, and because many out-of-state locations and farms already compete in the California market, we would expect little, if any, cost increase and no substantial impact on prices to California consumers.

Within California, a reduction in the number of eggs produced using the typical cage system could also occur within the six-year adjustment horizon. In the egg industry, direct operating costs comprise most of the annual cost of production per dozen eggs. Furthermore, most of the current housing units could not be converted to non-cage housing without significant investment for retrofitting. Therefore, operations could not continue to produce eggs in California without new capital investment, and such investment could not be justified when California costs of production would be far higher than costs in other states.

Our analysis indicates that the expected impact would be the almost complete elimination of egg production in California within the six-year adjustment period. Non-cage production costs are simply too far above the costs of the cage systems used in other states to allow California producers to compete with imported eggs in the conventional egg market. The most likely outcome, therefore, is the elimination of almost all of the California egg industry over a few years.

A small amount of non-cage or other specialty egg production may continue in California. However, since the large farms that now produce most of the eggs in cage systems also produce most of the non-cage eggs, it is unclear if they would remain competitive even in non-cage production. If the farms that produce most of the eggs using the non-cage systems were to eliminate their production using the caged housing systems, their operations would be much smaller and they would fail to capture the economies of scale that currently allow them to be efficient producers of both caged and non-cage eggs. Producers outside California may be able to use the scale economies of their production using cage systems to produce non-cage eggs at lower cost than the remaining California farms that would be only allowed to specialize in this

very small segment of the market. That said, it is likely that there would continue to be some small-scale niche-market producers remaining in California.

The economic logic behind these significant economic results is straightforward. Under new rules that eliminated the use of conventional low-cost cage housing systems, the costs of production in California would be significantly higher than out-of-state farms that have already demonstrated their ability to compete successfully in the California market. Thus the impact of the initiative would not affect *how* eggs would be produced, only *where* eggs would be produced. Furthermore, because out-of-state eggs are already a major share of the California market, and many producers compete actively in this market, no significant consumer price increases would be expected.

Employment and related broader economy-wide information about the egg industry in California is limited. Egg production and on-farm processing likely employs about three thousand workers concentrated in Southern California, the Central Valley and Sonoma County. Egg production is a sizeable part of the local economies, especially in several rural communities. Typically, each job within a farming industry adds an additional job in other local employment, and the egg industry follows a similar pattern. Egg production is particularly important to the rural economy of Merced County, which has a much higher poverty rate than the California average and unemployment rates approximately double the California average. Therefore elimination of egg industry jobs there would be especially troublesome. In addition, besides the overall effects on economic activity and employment, elimination of the egg industry would reduce state and local tax revenues.

Three implications of our analysis should be reinforced. First, the elimination of the cage housing system in California alone would not affect how the eggs consumed in California would be produced. Those eggs would continue to be produced using cage housing systems outside of California. We find that the main implication of the initiative would be on where eggs consumed in California would be produced. Second, imposing additional regulations that effectively eliminated most commercial egg production in California would reinforce the impressions that

food producers have about the difficulty of maintaining a dynamic, competitive and sustainable agricultural industry in California. Investment and innovation requires confidence inspired by a climate of security. Severe regulatory dislocation sends another discouraging signal, even to farms, processors, input suppliers and marketers that are not directly connected to the egg industry. This broad impact may be the most significant economy-wide implication of the initiative.

Third, let us consider a scenario beyond the California initiative. If a shift to non-cage production were to be imposed nationwide, the implications are different. We would expect consumer costs to rise substantially, by at least 25 percent, and perhaps much more. Under this scenario, lower-cost eggs produced from caged hens would not be available to supply U.S. consumers, unless it was possible to expand low-cost egg production in Canada or Mexico for shipments to U.S. markets. Egg production in the United States would continue with reduced volumes, but consumers would pay more and consume fewer eggs because of the higher price.

Finally, this study has considered only the economic implications of regulations that would eliminate the use of cage housing systems for egg production in California. We do not analyze implications for animal welfare, except to the extent that additional hen mortality and other hen health problems affect the cost of production. Nor do we analyze perceptions or preferences of the general population concerning egg production systems. Hence, our analysis cannot lead to overall recommendations about the initiative.

This research was supported with University of California funds. AIC did not seek or receive any outside financial support for this project.