

What is the effect of cage-free corporate outreach on egg-laying hens' welfare?

Ellen Pelos | Animal Charity Evaluators | February 2022

Summary

To understand the effect of corporate outreach on the welfare of egg-laying hens, we examined the effectiveness of corporate outreach on changing welfare practices and the welfare implications of switching to cage-free systems.^{1,2} Corporate outreach seems to be an effective intervention for encouraging companies to switch from caged to cage-free eggs, affecting between nine and 120 hen-years (i.e., years of hen life) per dollar spent.³ Although there is evidence that cage-free systems may lead to higher injury rates compared to caged systems, recent research suggests that these injuries are associated with operators' lack of experience with the new system and should decline over time.⁴



¹ Cage-free systems include space for hens to walk, lay their eggs in nests, and spread their wings. They do not necessarily have access to the outdoors.

² [Dutkiewicz \(2021\)](#) notes that there is no single, legally defined standard for cage-free production.

³ [Šimčikas \(2019\)](#)

⁴ [Schuck-Paim et al. \(2021\)](#)

Our Assessment

Corporate outreach is likely to positively affect egg-laying hen welfare if corporations follow through on their cage-free commitments because cage-free systems are higher welfare than battery cage systems.

Background Information

There are 7.47 billion egg-laying hens in the world, with an estimated 60% or more in battery cages.⁵ In the U.S., about 70% of egg-laying hens live in battery cages.⁶ There were 325 million egg-laying hens in the U.S. at the end of 2020, which is 5% lower than 2019.⁷ Overall, there is a trend towards more cage-free housing for hens in the U.S. In 2008, about 4% of hens lived in cage-free housing, whereas in 2021, almost 30% lived in cage-free housing.⁸

Effectiveness of Corporate Outreach

Corporate follow-through on commitments. There is some evidence that corporate outreach leads food companies to change their practices related to hen welfare. Šimčikas estimated that the follow-through rate of cage-free corporate commitments ranges from 48% to 84%.⁹ Founders Pledge estimated there is a 60% probability that companies will follow through with cage-free commitments.¹⁰ Furthermore, Compassion in World Farming found that 63% of companies made progress on their cage-free commitments in 2020.¹¹

Cost-effectiveness of corporate outreach. Cost-effectiveness estimates vary widely, and it is unclear which are the most accurate. However, it seems likely that spending one U.S. dollar on corporate outreach directly affects at least nine hen-years. Šimčikas reports that corporate outreach affects between nine and 120 hen-years per dollar spent.¹² Hen-years per dollar spent is a metric to estimate how much good can be done for egg-laying hens for every dollar spent on

⁵ [CIWF \(2020\)](#)

⁶ [Mendez \(2021\)](#)

⁷ [United Egg Producers \(2021\)](#)

⁸ [Mendez \(2021\)](#)

⁹ [Šimčikas \(2019\)](#)

¹⁰ [Capriati \(2018\)](#)

¹¹ [CIWF \(2020\)](#)

¹² [Šimčikas \(2019\)](#)

acquiring cage-free corporate commitments.¹³ Capriati claims that The Humane League has impacted ten hen-years per dollar received.¹⁴

Are cage-free systems actually better for hen welfare?

Hartcher and Jones¹⁵ define “good welfare” for egg-laying hens as “a combination of adequate nutrition, an appropriate environment, optimal health, the expression of normal behaviors, and positive mental experiences.” No existing housing system is ideal for hen welfare—each has its own benefits and drawbacks.¹⁶ Cage-free systems allow hens to engage in some essential natural behaviors, such as walking, spreading their wings, and laying eggs in nests, which is known to positively affect their welfare. However, cage-free systems are not necessarily high-welfare. Hens in cage-free systems may still face harmful practices, e.g., killing male chicks, debeaking, lack of food and water during transportation, starvation to force molting, and slaughter.¹⁷ Additionally, there is evidence of a greater risk of keel, beak, skin, and feather abnormalities in cage-free housing systems compared to battery cage systems.¹⁸

There have been concerns about higher mortality rates in cage-free systems compared to caged systems. It should be noted that mortality rate is one of many animal welfare indicators and does not fully encapsulate the three pillars of hen welfare.¹⁹ Despite the seemingly higher mortality rates in cage-free systems, the mortality of egg-laying hens drops to the same level as caged systems as farmers’ experience with cage-free systems increases.²⁰ In two independent data sets, the authors identified a significant decrease in mortality within aviary housing systems (i.e., multi-level cage-free systems) as farmers gained skills over time. Another study found no statistically significant differences in mortality among the three housing systems researched: aviary, battery cages, and barns.²¹ In addition to these studies, according to a management guide from an egg-laying hen breeder,²² aviaries require farmers to introduce chicks to the system in a very specific, careful manner to ensure proper adjustment and safety. If farmers are not following

¹³ [Šimčikas \(2019\)](#) uses the following formula for this metric: (# of chickens affected)(follow-through rate)(mean years of impact) / costs = chickens affected per dollar.

¹⁴ [Capriati \(2018\)](#)

¹⁵ [Hartcher & Jones \(2017\)](#)

¹⁶ [Lay et al. \(2011\)](#)

¹⁷ [HSUS \(2021\)](#)

¹⁸ [Blatchford et al. \(2016\)](#); [Yilmaz Dikmen et al. \(2016\)](#); [Hardin et al. \(2019\)](#)

¹⁹ For more information on the pillars of welfare, see [Hartcher & Jones \(2017\)](#).

²⁰ [Schuck-Paim et al. \(2021\)](#)

²¹ [Ahammed et al. \(2014\)](#)

²² [Lohmann Breeders \(n.d.\)](#)

these guidelines, it could lead to higher injury and abnormality rates for hens raised in cage-free aviary systems.

Based on the available evidence, we conclude that cage-free systems are relatively higher-welfare than battery cage systems because they allow hens to engage in some important natural behaviors that positively affect welfare. Although there is evidence that mortality rates are slightly higher in cage-free systems, there is also evidence that this pattern dissipates as farmers learn how to properly operate cage-free systems.

Generalizability

The conclusions in this brief are relatively generalizable because many of the corporations targeted by these interventions operate globally. However, specific tactics used to target corporations are likely more generalizable to the U.S. and Europe, as organizations in these regions served as the sample groups in most of the studies. The hen welfare studies are likely generalizable to many regions because they include more global data sets, and welfare research is more universally applicable.

References

- Ahmed, M., Chae, B. J., Lohakare, J., Keohavong, B., Lee, M. H., Lee, S. J., Kim, D. M., Lee, J. Y., & Ohh, S. J. (2014). Comparison of aviary, barn and conventional cage raising of chickens on laying performance and egg quality. *Asian-Australasian Journal of Animal Sciences*, 27(8), 1196–1203. <https://doi.org/10.5713/ajas.2013.13394>
- Blatchford, R. A., Fulton, R. M., & Mench, J. A. (2016). The utilization of the Welfare Quality® assessment for determining laying hen condition across three housing systems. *Poultry Science*, 95(1), 154–163. <https://doi.org/10.3382/ps/pev227>
- Capriati, M. (2018). *Cause area report: Corporate campaigns for animal welfare*. Founder's Pledge. <https://founderspledge.com/research/fp-animal-welfare>
- Coltra, A. (n.d.). *How will hen welfare be impacted by the transition to cage-free housing?* Open Philanthropy. Retrieved February 4, 2022, from <https://www.openphilanthropy.org/focus/us-policy/farm-animal-welfare/how-will-hen-welfare-be-impacted-transition-cage-free-housing>

- Dutkiewicz, J. (2021, March 23). Utah's new cage-free chicken law won't make eggs more humane. *The New Republic*.
<https://newrepublic.com/article/161776/banning-chicken-cages-wont-make-eggs-humane>
- Compassion in World Farming (CIWF). (n.d.). *Egg Track 2020 Report*. Retrieved February 4, 2022, from <https://www.ciwf.com/media/7442448/2020-eggtrack-report-english.pdf>
- United Egg Producers. (n.d.). *Facts & Stats*. Retrieved February 5, 2022, from <https://unitedegg.com/facts-stats/>
- Hardin, E., Castro, F. L. S., & Kim, W. K. (2019). Keel bone injury in laying hens: the prevalence of injuries in relation to different housing systems, implications, and potential solutions. *World's Poultry Science Journal*, 75(2), 285–292.
<https://doi.org/10.1017/S0043933919000011>
- Hartcher, K. M., & Jones, B. (2017). The welfare of layer hens in cage and cage-free housing systems. *World's Poultry Science Journal*, 73(4), 767–782.
<https://doi.org/10.1017/S0043933917000812>
- Humane Society of the United States, The (HSUS). (n.d.) *Cage-free vs. battery-cage eggs*. Retrieved February 5, 2022, from <https://www.humanesociety.org/resources/cage-free-vs-battery-cage-eggs>
- Lay, D. C., Fulton, R. M., Hester, P. Y., Karcher, D. M., Kjaer, J. B., Mench, J. A., Mullens, B. A., Newberry, R. C., Nicol, C. J., O'Sullivan, N. P., & Porter, R. E. (2011). Hen welfare in different housing systems. *Poultry Science*, 90(1), 278–294. <https://doi.org/10.3382/ps.2010-00962>
- Lohmann Breeders (n.d.). *Management guide: Alternative systems*. Retrieved November 10, 2021, from <https://lohmann-breeders.com/e-guide/alternative-housing/2/>
- Mendez, S. (2019). *US Egg Production Data Set*. The Humane League Labs.
<https://assets.ctfassets.net/ww1ie0z745y7/5x4LpTMoZLQbGpYSaZXpY3/24e96497c51f7398f03776790e9a1b9d/E008R01-us-egg-production-data.pdf>

Regmi, P., Nelson, N., Steibel, J. P., Anderson, K. E., & Karcher, D. M. (2016). Comparisons of bone properties and keel deformities between strains and housing systems in end-of-lay hens. *Poultry Science*, 95(10), 2225–2234. <https://doi.org/10.3382/ps/pew199>

Schuck-Paim, C., Negro-Calduch, E., & Alonso, W. J. (2021). Laying hen mortality in different indoor housing systems: a meta-analysis of data from commercial farms in 16 countries. *Scientific Reports*, 11(1), 3052. <https://doi.org/10.1038/s41598-021-81868-3>

Šimčikas, S. (2019, July 9). *Corporate campaigns affect 9 to 120 years of chicken life per dollar spent*. Effective Altruism Forum. <https://forum.effectivealtruism.org/posts/L5EZjjXKdNgcm253H/corporate-campaigns-affect-9-to-120-years-of-chicken-life>

Yilmaz Dikmen, B., İpek, A., Şahan, Ü., Petek, M., & Sözcü, A. (2016). Egg production and welfare of laying hens kept in different housing systems (conventional, enriched cage, and free range). *Poultry Science*, 95(7), 1564–1572. <https://doi.org/10.3382/ps/pew082>