

Garrett Wolcott
MCEN 4151

(egg)

The video (egg) was inspired from my flock of chickens and a recent excess of eggs. I currently own six chickens which each produce an egg every day. I take great pride in how I have raised my chickens by feeding them locally sourced, natural food. They have four times the recommend coop space and I let them roam around my garden for a few hours everyday. This video was intended to provoke others to consider food in a different manner. A simple egg hopefully encourages others to learn more about food production and the harmful farming practices currently in place. As much as I would like to write pages about this subject I shall discuss my video and the methods which were used to create this clip.

I created this video with the help of my roommate Kris who was the “egg cracker”. I would like to thank him for his help. We created this video on Saturday, February 3rd. Initially, I wanted to capture the egg being cracked into a pan. After several attempts, I decided the flow would be better represented by capturing the video from the pan’s perspective. I created a cardboard box encasement which I then set an eighth inch piece of glass on. The box was used to block any light from entering under the glass and distorting the image. After several iterations, we found an egg cracked from a height of 8 inches was ideal to allow the yolk to break but not splatter. I hung a black blanket above the glass, attached to the ceiling. I also blacked out all of the windows to help control the light. With the use of four lamps, I was able to achieve consistent lighting. To capture the video, I started with my Canon Powershot point and shoot camera. After several takes, I was not pleased with the results and found my iPhone was better at capturing video.

The egg was first slightly cracked by Kris, who then placed the egg at the desired height. He slowly released the albumen, or egg white, and allowed the fluid to fall onto the glass. Then by slowly opening the egg, the yolk was released and impacted on the glass surface. I have observed the eggs to have a less viscous consistency over the winter. I was unable to find a definitive answer, but the consensus among backyard chicken farmers was the colder temperatures cause this condition (Zissu). I have also observed the yolk membrane, the vitelline

membrane, appear to be weaker than an eggs laid in the warmer months. Most commercial chickens are feed carotenoids, which produce vitamin C in the egg yolk, which is not naturally in egg yolks. This helps increase the strength of the yolk for shipping and storage (Bellairs). The apparent viscosity of a hen's egg was recorded at 1.1 (Pa*s) and could withstand a force of up to 6.4 (g) (Marzec). Given the eight inch drop, the yolk membrane ruptured and allowed for a visualization of the interaction between the yolk and the albumen.

The camera was located 4 inches below the glass. The iPhone camera has an 8 MP sensor. I recorded at 60 frames per second at 1080p. The camera specifications from apple were as follows: f/2.2, 29mm, 1/3", 1.5 μm . I used a free video editing software, Lightworks, for my video editing. I slightly blurred the beginning of the video, because I found Kris's hand to be distracting. Once the egg albumen contacted the glass, I removed the blur and increased the saturation and brightness. I then added a fade out at the end of the video.

This was my first time using video editing software, and I found the process to be very difficult. If I were to record and edit a video in the future, I believe I would be much quicker, and could spend more time trying different visual effects. If I were to reshoot this video, I would first try to increase the lighting. On my phone it appeared to be much brighter than when I imported the video into the software. I also was unable to export the video in 1080p given I was only using the free version. Overall, I was pleased with the video, and found the experience to be enjoyable. This was my first attempt at capturing and editing video and would like to try recording and editing more videos in the future.

Link: <http://www.flowvis.org/2018/02/04/get-wet-garrett-wolcott/>

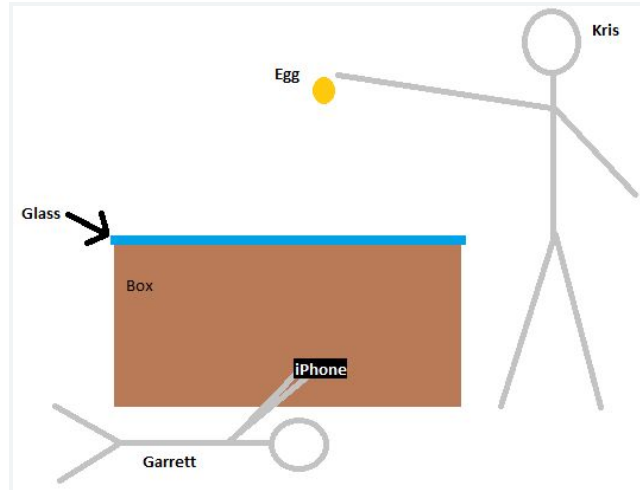


Figure 1: A drawing of the experimental setup

Alexandra Zissu. "Alexandra Zissu Author Green Living Expert Environmental Health Journalist Eco Consultant Speaker Mom." *Alexandra Zissu*, www.alexandrazissu.com/az-blog/2011/08/18/ga-watery-egg-whites/.

Bellairs, R., Harkness, M. & Harkness, R.D. 1963. The Vitelline Membrane of the Hen's Egg: a Chemical and Electron Microscopical Study. *J. Ultrastructure Research* 8: 339—359

Mann, K. 2008. Proteomic analysis of the chicken egg vitelline membrane. *Proteomics* 2008, 8: 2322–2332.

Marzec, Agata, et al. "Correlations between Vitelline Membrane Strength and Selected Physical Parameters of Poultry Eggs." *Annals of Animal Science*, De Gruyter Open, 1 Sept. 2016, www.degruyter.com/view/j/aoas.2016.16.issue-3/aoas-2016-0015/aoas-2016-0015.xml.