



Americans eat almost 60 pounds of chicken each, every year. Image credit: Flickr user Steve Johnson (CC BY 2.0)

It's 3 PM on a Friday; just a few more hours until the night shift takes over. Jeff is a good employee. He's been checking chickens for years, even before the new HIMP rules came out in 1998<sup>1</sup>. But with experience can come complacency, and Jeff's thinking about the date he's got in a couple of hours. "How long has it been since I was in love?" Jeff wonders, as one by one, ninety birds a minute, the carcasses whiz past. If there are any organoleptic issues, Jeff doesn't see them. He's watching the clock tick toward his date.

### **The Dangers of Human Error in the Poultry Line**

Human error can be costly in the poultry business. Due to the high risk of foodborne illnesses such as Salmonella, Campylobacter jejuni, Listeria monocytogenes, and E. Coli<sup>2</sup>, the processing of chicken is highly regulated by the United States Department of Agriculture. According to these rules, each chicken you process must be individually inspected externally and internally for signs of disease. Besides disease, other conditions, such as bruising, scratching, septicemia, airsacculitis, pre-slaughter death, and fecal contamination require birds to be downgraded or condemned<sup>3</sup> for disposal.

It is routine and preferable, of course, if you can identify these issues on the line before the chilling process, while birds can still be individually condemned or correctively reprocessed. Should issues be discovered at a later stage, all birds in a batch must be rewashed, chilled, and inspected, causing downtime.

Worse, should issues be uncovered post-distribution, you might be facing a recall. According to Veronica F. Pozo and Ted C. Schroeder's 2014 study<sup>4</sup>, Class One recalls can have a significant effect on a company's stock price, even to the point of threatening bankruptcy. In short, human error, whether due to inattention, inexperience, fatigue, the subjectivity of human eyesight,

inebriation, or poor morale, can cause substantive repercussions for poultry producers, especially when you're operating on a scale of millions to tens of millions of chickens slaughtered per week<sup>5</sup>.



Broiler Chickens live on average 45 days. Image Credit: Flickr User Oregon Department of Agriculture. ([CC BY 2.0](#))

### **Spectrophotometric Solutions for Poultry Processing**

The introduction of spectrophotometers can significantly reduce the potential for human error in your quality control process. [By assessing the color](#) of each bird, a spectrophotometric system can determine if it presents any issues, such as bruises or hemorrhages, that require the meat be downgraded or condemned. Unlike humans, machines don't get tired, bored, inattentive, or sloppy when examining chickens for hours, days, months, and years on end.

As the family Phasianidae contains not just chickens, but pheasants, partridges, and quail, so the family of spectrophotometers also contains many genera and species of color measurement machines. Chicken is best suited for large-scale poultry farming and consumption, and [HunterLab's Ultrascan Pro](#) is best suited for detecting abnormalities in poultry. These machines perform reflectance spectroscopy with wavelengths ranging from 350 nm to 1050nm, flagging poultry displaying an incorrect spectral profile.



It's important to choose a spectrophotometric system well-suited to measuring poultry. Image Credit: Flickr user Amro. ([CC BY 2.0](#))

### **Further Benefits of Spectrophotometers in Poultry Processing**

A spectrophotometric system both generates and stores large volumes of color data, which can in turn be analyzed to improve production processes. If, for example, the data reveals that an increasing number of birds coming through your line are too red to accept, your plant manager might adjust the alignment of toe and head bars to reduce the number of chickens entering scalding still alive<sup>6</sup>. Large amounts of bruising could suggest that managers need to check their stunning voltage or start adjusting pickers more frequently. Unlike assessing these issues from the scattered reports of plant employees, objective data lets you view quality trends in an integrated, central system and make changes accordingly.

In the rigorous regulatory environment surrounding the poultry processing industry, it is essential for companies to implement the most stringent, efficient, and accurate quality control systems they can. Quality control failures can damage your bottom line via rework, recalls, and reputational damage. The integration of spectrophotometers can reduce your margin of error by eliminating unreliable human factors. For more information on the right spectrophotometer for your operation, [contact the experts at HunterLab](#).

1. "Food Safety and Inspection in the U.S. Broiler Chicken Industry,"  
2012, <http://www.nationalchickencouncil.org/industry-issues/food-safety/>
2. "Chicken From Farm to Table,"  
2014, [https://www.fsis.usda.gov/wps/wcm/connect/ad74bb8d-1dab-49c1-b05e-390a74ba7471/Chicken from Farm to Table.pdf?MOD=AJPERES](https://www.fsis.usda.gov/wps/wcm/connect/ad74bb8d-1dab-49c1-b05e-390a74ba7471/Chicken_from_Farm_to_Table.pdf?MOD=AJPERES)

3. "Costs of Meat and Poultry Recalls to Food Firms,"  
2015, [http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1690&context=extension\\_cural](http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1690&context=extension_cural)
4. "Poultry Processing Condemnations: A Guide to Identification and Causes,"  
2012, <http://www.wattagnet.com/articles/12666-poultry-processing-condemnations-a-guide-to-identification-and-causes>
5. "Best Food Quality and Safety Practices for Poultry,"  
2012, <http://www.foodsafetymagazine.com/magazine-archive1/februarymarch-2012/best-food-quality-and-safety-practices-for-poultry/>
6. "Reference Guide for Solving Poultry Processing Problems,"  
2012, <http://extension.uga.edu/publications/detail.cfm?number=B1156>