

Analysis of Controlled-Atmosphere Killing vs. Electric Immobilization from an Economic Standpoint



PETA

PEOPLE FOR THE ETHICAL
TREATMENT OF ANIMALS

501 FRONT ST.
NORFOLK, VA 23510
757-622-PETA
757-622-0457 (FAX)

PETA.org
info@peta.org

Current Method: Electronic Immobilization

With electric immobilization—the conventional poultry slaughter method in the U.S.—live birds are dumped out of crates and shackles by workers, immobilized by having their heads run through an electrically charged water bath, have their throats slit by a machine, and are defeathered in scalding tanks.

Electric immobilization lowers product quality and yield:

- Birds suffer broken bones, bruising, and hemorrhaging when they are dumped and shackled. This lowers product quality and yield.
- During dumping, birds often scramble to reach the top of the pile, and in the process, sink their claws into the birds around them. Because the birds have been living in their own feces, when a bird's claw penetrates another bird, it contaminates the flesh.
- The electric water baths contain pathogens that birds breathe in, thereby further contaminating them.
- Because the voltage level of stun baths in the United States is kept at only a fraction the level necessary to render birds insensible to pain—and because many birds miss the throat-slitting machine due to flapping and rapid line speeds—birds often enter the scalding tank while still alive. The U.S. Department of Agriculture reported that 3.7 million birds were scalded to death in defeathering tanks in 2002 alone. When this happens, birds may defecate in tanks, further increasing contamination. Those birds who are scalded to death are condemned—their meat can't be sold—which further decreases yield.

Electric immobilization increases labor costs:

- Because the light in slaughterhouses must be kept very low to calm birds, accident rates are abnormally high. Flapping birds also kick up dust and debris (including dried feces), leading to respiratory problems in workers. When birds flap and peck they can also injure workers (and the back-up killers are often injured by their own knives when trying to cut the throats of birds who have missed the killing machine). Because birds are scared, they often defecate and vomit on workers, leading to increased rates of bacterial infections in workers.
- Aside from creating high payout due to injuries and illness, these poor working conditions result in extremely high turnover rates. The average slaughterhouse turnover rate is between 75 and 100% per year.

New Method: Controlled-Atmosphere Killing

With controlled-atmosphere killing (CAK), birds—still in the transport crates that they arrived in—are placed in chambers, where their oxygen is replaced with a mixture of inert gasses, efficiently and gently putting them “to sleep.” After they are dead, they are shackled, bled, and defeathered.

CAK increases product quality and yield:

- Because birds are dead by the time they are shackled (and because there is no dumping at all), product quality and yield are improved by eliminating broken bones, bruising, and hemorrhaging.
- CAK would nearly eliminate contamination because birds would be killed in their transport containers rather than being dumped and would, therefore, not be scratching at each other and would be unable to inhale in the stun bath or defecate in the scald

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tank. This has significant benefits for producers since, according to the USDA, in 2002, almost 5.5 million chickens were condemned for being contaminated.

- Using inert gases induces anoxia on the cellular level in carcass muscles, which can change the oxidation/reduction potentials and, thus, lead to increased shelf-life of meat due to a slowing of the development of odors and discoloration.
- The Canadian Food Inspection Agency states that controlled-atmosphere killing “is also reported to produce more tender breast meat than when electrical [immobilization] is used.”

CAK lowers labor costs:

- A reduction in bruising and broken bones lowers labor costs by reducing the need for carcass and fillet examination. This is significant, considering that a typical U.S. slaughterhouse that processes 1.3 million broilers per week incurs more than \$248,000 per year in labor costs associated with carcass handling. Also, the less problematic shackling of dead birds—as opposed to live, struggling ones—allows for more efficient labor and could reduce the number of shacklers needed to achieve the same rate.
- Because workers do not handle live, flapping birds—and because lighting levels can be increased and dust levels can be decreased—overall working conditions are improved and fewer injuries are sustained by workers. One CAK plant in Michigan reports an annual turnover rate of only 20 percent; the industry average is 375-500 percent as high as this plant’s rate.
- The turnover rate among hangers at an MBA plant in Tecumseh, Nebraska dropped by at least 75 percent after they installed CAK. According to the plant owner, “Before, every week there was a new person. Now, it’s one of the nicer jobs in the plant.”
- A Le Clezio plant in France switched to CAK after its live hangers went on strike over working conditions and were backed up by the rest of the plant’s union employees. The plant now touts the improved ergonomics.

CAK has other economic benefits:

- CAK causes a more rapid pH fall in the carcasses than electrical immobilization, resulting in faster carcass-maturation times and enabling early filleting. This has important financial implications, as refrigeration can be significantly reduced, thus, saving on storage, energy, and refrigeration equipment and maintenance costs. The European Integrated Pollution Prevention Control Bureau reports that CAK results in “[r]educed energy consumption due to reduced refrigeration time and space requirements because it is no longer necessary to mature the carcasses.”
- Improved quality and yield from CAK leads to a reduced by-product waste.
- Reduced contamination resulting from CAK also means that less water is needed to rinse off carcasses (the electrical immobilization model typically uses about 15 liters of water per bird), thus, there is less run-off and reduced water-treatment needs.

For more information, including a detailed report on CAK and electric immobilization, please e-mail MattPrescott@peta.org.