

Researchers develop coatings to reduce ham mites, protect ozone layer

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A Kansas State University entomologist has helped develop new methods to keep mites away from dry-cured hams while also meeting international requirements to protect the ozone layer.

Tom Phillips, professor in the university's entomology department, was part of a research team led by food scientists at Mississippi State University that was successful in using the food-safe compound [propylene glycol](#) to protect from ham mites.

Their work, "Developing food-grade coatings for dry-cured hams to protect against ham mite infestation," was published on March 1 in the *Journal of Meat Science*, the official publication of the American Meat Science Association.

For many years, ham mites were controlled with methyl bromide, a fumigant that is safe to food. But in 1989, it was one of several substances listed in the Montreal Protocol, an international treaty to phase out the use and production of substances responsible for ozone depletion.

"Methyl bromide has been important as a fumigant for controlling pests of different kinds," Phillips said. "Seventy to 80 percent of all bromide use was for sterilizing soil in very high-value places like California and Florida, where they grow strawberries and fresh vegetables."

Phillips and colleagues developed food-grade coatings with propylene

glycol, a common food preservative, which they applied to hams before the aging process begins. Whole dry-cured hams, also known as country hams, are considered a specialty product and often take three months to two years to fully cure. They differ from wet-cured hams, which are the refrigerated products consumers most often buy at grocery stores.

The scientists found that mites, which can lay three to five eggs per day, avoided the hams that had been treated with the propylene glycol coating. That's a significant finding for a ham that may be curing for many months.

Phillips said the researchers are looking for alternate fumigants to [methyl bromide](#), as well as additional management methods to keep foods safe.

"The other things we are working on are common sense, sometimes used for centuries, such as extreme temperatures—heat or cold," Phillips said. "We have these methods that are safe for food. I always say that necessity is the mother of adoption; when they are needed, industry will adopt these methods and we are here to help them."

More information: Y. Zhao et al. Developing food-grade coatings for dry-cured hams to protect against ham mite infestation, *Meat Science* (2016). [DOI: 10.1016/j.meatsci.2015.11.014](https://doi.org/10.1016/j.meatsci.2015.11.014)

Provided by Kansas State University

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