



## **A New Way to Fight Salmonella in Poultry**

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A recent University of Georgia study has shown that feeding chickens a blend of plant-based oils in their drinking water can help prevent salmonella contamination which contributes to an estimated 1 million cases of foodborne illness in the United States every year.

Walid Alali, a food safety scientist with the University of Georgia in Griffin has been conducting research on reducing the harmful bacterium in an effort to reduce human illness. Salmonella is not only linked to poultry meat and eggs, but also peanut butter, unpasteurized juices, and produce. Alali estimates that 20,000 people will visit hospitals because of salmonella contamination and that nearly 400 people will die because of the bacteria this year alone. Symptoms typically last four to seven days and most folks get better on their own, however salmonella can cause more serious problems to infants, the elderly, and those with chronic diseases. A major outbreak in 2011 was linked to ground turkey meat that infected 136 people in 34 states while a 2009 outbreak linked to a Georgia peanut butter facility infected 400 people in 42 states.

His work, published in the October issue of Food Control, demonstrated the adding of a product known as Mix-Oil, a highly concentrated blend of essential oils from thyme, eucalyptol, and oregano developed by the Italian company Animal Wellness Products (AWP) in 2004. On the UGA poultry research facility in Athens, Alali compared Mix-Oil to two organic acids traditionally used in the poultry industry to reduce salmonella carried by poultry. Farmers currently use organic acids in conjunction with probiotics, a cocktail of good bacteria that compete with the salmonella and other bad bacteria.

Findings from the UGA study showed that poultry fed Mix-Oil in their water had higher weight gains, a lower feed-conversion rate, and lower mortality rates. The birds fed Mix-Oil also drank as much water as they did before the Mix-Oil treatment was added and more water than birds that were given lactic acid to prevent salmonella.

Alali pointed out in his findings that chickens consume less water with one of the organic acids, such as lactic acid, because they don't like the taste of it. It can also inflame the chicken's intestines and can damage a farm's water pipes over time. The study showed that the Mix-Oil treatment controlled salmonella as well as organic acid treatments but also improved performance of the test flock.

The proper concentration and cost of Mix-Oil are also under consideration. The initial UGA study showed that the Mix-Oil treatment cost around \$500 per 20,000 bird flock to prevent salmonella and improve performance. Alali and other UGA researchers plan to take these findings and expand their research to a farm-level study to see how large scale production is affected by the product. The goal of this research is to prevent salmonella contamination in the poultry industry at a pre-harvest level, on the farm, and in the processing plant, what Alali calls "farm to fork control." This helps ensure safer food for the consumer and more efficient production on the farm.