

Salmonella detection in farm ponds and irrigation distribution systems used for mixed produce production in southern Georgia

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Because irrigation water has been shown to be a vector for the contamination of fresh produce by pathogenic bacteria, the proposed produce safety rule under the Food Safety Modernization Act (FSMA) requires that agricultural water must be safe and of adequate sanitary quality for its intended use. These requirements may be challenging for farmers using surface water sources such as constructed farm ponds. The purpose of our study was to assess the presence and concentration of *Salmonella* and indicator bacteria in irrigation water exiting different distribution systems on a mixed produce (tomatoes, squash, peppers, eggplant, cantaloupe, leafy greens) farm in southern Georgia. *Salmonella* and generic *Escherichia coli* concentrations (CFU/100 mL) were monitored in 2 irrigation ponds supplying drip, center pivot, and solid set sprinkler systems and one deep groundwater well feeding a drip system. Samples were collected during three growing seasons in 2012-2013. *Salmonella* was detected in water from ponds, pivot, drip line (start) and drip line (end) samples. The mean *Salmonella* concentration was low (<1.0 CFU/100 mL) in positive samples. No *Salmonella* was detected in samples collected from the well or the drip system fed from the well. Generic *E. coli* concentrations in samples from irrigation systems containing *Salmonella* were below the proposed FSMA threshold of 235 CFU/100 mL. Knowledge resulting from this project will allow vegetable producers that rely on untreated surface sources of irrigation water to effectively address new rules the FDA may implement on safe agricultural water.