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Farm pond water quality may change during the day

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Lead author Matthew Stocker lowers a sonde into an irrigation pond to measure water quality. Photo courtesy of Matthew Stocker.

Farm ponds are an important source of irrigation water, and their microbial quality is assessed by measuring *E. coli* levels. However, to date there have been no reports on how those levels might vary throughout the course of a day.

In a recent article published in the *Journal of Environmental Quality*, researchers from the USDA's Environmental Microbial and Food Safety Lab shed light on that question. During three consecutive growing seasons, the team measured *E. coli* levels in three Maryland irrigation ponds three times a day. They found that the sampling time significantly affected *E. coli* concentrations in about half the cases. Concentrations were typically highest in the morning and steadily decreased throughout the day.

These results indicate that conservative estimates of microbial water quality can be obtained by sampling in the morning, with water quality improving later in the day. Incorporating this information into the design of monitoring programs will improve our ability to determine the food safety risks related to irrigating from ponds.

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Stocker, M.D., Smith, J.E., Hill, R.L., & Pachepsky, Y.A. (2022). Intra-daily variation of *Escherichia coli* concentrations in agricultural irrigation ponds. *Journal of Environmental Quality*. **https://doi.org/10.1002/jeq2.20352**

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