Evaluation of Microbial Quality of Agricultural Water from Small Farms in Kentucky

Shreya Patel, and Avinash Tope, Kentucky State University, Frankfort, KY

The number of food borne outbreaks from fresh produce have increased considerably in recent years. Fresh produce is usually consumed raw, without going through processing such as cooking, making it a vulnerable segment that demands microbial safety assessment. Some of the critical environmental factors that contribute to increased risk of contamination by potential bacterial pathogens include the source of irrigation, manure and fertilizers. The latest changes to the Food Safety Modernization Act’s (FSMA) Produce Safety Rule (PSR, 2016) require that “all agricultural water must be safe and of adequate sanitary quality for its intended use” (section 112.41) with an *E. coli* geometric mean less than 126 cfu/100mL, to be tested at least once a year.. In order to offer GAP training and outreach service to small and limited resource minority farmers, microbial quality of agricultural water used on 20 small farms in Kentucky was evaluated. In all, 59 water samples were collected from 2014-2017. Coliform and *E. coli* count in 100ml of collected water was tested using IDEXX Colilert system. Municipal (n= 45), surface (n=7), and ground (n=7) water showed an average count of 0, 0 and 0.14 cfu/100mL of *E. coli*. Only one from 7 ground water samples tested positive for *E. coli* (1 cfu/ml). None of the irrigation water samples tested exceeded the permissible *E. coli* count. This study will help to develop a research based microbial quality monitoring system for agricultural water and to effectively implement GAPs on small farms in Kentucky and prevent food borne illnesses.

References:

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