Small changes in agricultural practices could reduce produce-borne illness

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Researchers from Cornell University have identified some agricultural management practices in the field that can either boost or reduce the risk of contamination in produce from two major foodborne pathogens: salmonella, the biggest single killer among the foodborne microbes, and Listeria monocytogenes. Their findings are published ahead of print in the journal *Applied and Environmental Microbiology*.

"This is going to help make produce safer," says Laura Strawn, a researcher on the study. "We could significantly reduce risk of contamination through changes that occur a few days before the harvest."

Many of the risk factors were influenced by when they were applied to fields which suggests that adjustments to current practices may reduce the potential for contamination with minimal cost to growers, says Strawn.

Foodborne illness sickens an estimated 9.4 million, and kills around 1,300 annually in the US, according to the Centers for Disease Control and Prevention. Produce accounts for nearly half the illnesses, and 23 percent of the deaths.

"The research is the first to use field collected data to show the association between certain management practices and an increased or decreased likelihood of salmonella and L. monocytogenes," says Strawn.

For salmonella, manure application within the year prior to the researchers' sampling boosted the odds of a contaminated field, while the presence of a buffer zone between the fields and potential pathogen reservoirs such as livestock operations or waterways was protective.

Irrigation within three days before sample collection raised the risk of listeria contamination six-fold. Soil cultivation within the week before sampling also increased the chances of contamination.

"These findings will assist growers in evaluating their current on-farm food safety plans (e.g. "Good Agricultural Practices"), implementing preventive controls that reduce the risk of pre-harvest contamination, and making more informed decisions related to field practices prior to harvest," says Strawn. "Small changes in how produce is grown and managed could result in a large reduction of food safety risks."

More information: A copy of the manuscript can be found online. Formal publication is scheduled for the December 2013 issue of *Applied and Environmental Microbiology*.

Provided by American Society for Microbiology

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