

A question for C-Level executives How well are you managing risk?

March 1, 2019 - An important senior management responsibility involves assessing potential threats to an organization, identifying areas of concern and developing mitigation plans. Risk levels are determined by the likelihood of an event occurring, the extent of potential damage and the financial impact.

With food safety, risk management takes on a whole new meaning because our consumers' health and well-being are at stake. That's why food safety audit schemes, FSMA (Food Safety Modernization Act) regulations and LGMA (Leafy Greens Marketing Agreement) metrics all have requirements to assess risk and to take steps to minimize pathogen contamination. CPS (Center for Produce Safety) research provides a wide set of foundational science that can and is being utilized to improve our knowledge of food safety risks.

Some food safety risks are straight-forward to deal with. For example, in our last article, a CPS research project showed that risk of animal intrusion onto farms is low, but vigilance needs to be maintained to monitor for any signs of fecal contamination and destroying crops that may be contaminated. A much more challenging situation occurs when animals are in close proximity to farms. Scientific research is still focused on understanding how pathogens can move onto fresh produce production areas (PPAs). It's known that environmental factors play a significant role, but more research is needed to understand when crops are at-risk and what strategies are needed to mitigate those risks.

Animal production areas (APA's) range from grazing land with few animals to large concentrated animal feeding areas (CAFO's). Pathogen movement can potentially come from surface water runoff, by seepage into groundwater, by wind and rainfall among other factors.

A relevant CPS research project, *Bioaerosols from cattle production areas: evaluation of proximity and airborne transport on leafy green crop contamination 2012*, was led by Elaine D. Berry from USDA ARS. This study found that airborne transport of total E. coli was verified in plot locations at 200, 400 and 600 feet distant from CAFO locations. Decreases in concentrations were observed as distance from the CAFO increased. In other words, the further fresh produce production is located away from CAFOs the better. Recent changes to the LGMA metrics to increase the buffer zone from 400 to 1,200 feet is supported by research done in several CPS research projects.

With another CPS research project underway, establishment of vegetative buffer zones to reduce the risk of ST C and Salmonella transmission from animal operations to fresh produce on co managed farms. Led by Siddhartha Thakur from North Carolina State University. This project has already confirmed that pathogens can move from animal production areas to fresh produce areas. The next step is to determine whether vegetative buffer zones can reduce the risk of animal proximity to fresh produce production areas.

For growers, there are no silver bullet solutions that can eliminate all risk. But, CPS has a considerable amount of research available on "predictive tools" to help minimize risk. For example, the CPS project Validation of geospatial algorithms to predict the prevalence and persistence of pathogens in produce fields to improve GAPs led by Martin Wiedmann from Cornell University. This work showed how GIS models can be used to predict increased risk of pathogens in produce production areas. One of the recommendations is to wait 24 hours after irrigation and rain events before harvesting crops to significantly reduce the risk of pathogen contamination.

Other than predictive modelling, how can growers know

