Healthy farms and nature are not at odds: Reducing environmental impacts of food safety practices

http://www.pnas.org/content/early/2015/08/05/1508435112.abstract
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In 2006, a high profile outbreak of toxic E. coli in bagged spinach was traced to California’s Central Coast, where >70% of the United States’ salad greens and vegetables are produced. Though no definitive cause for the outbreak could be determined, wildlife was implicated because some animals can harbor pathogens. Growers were subsequently pressured, primarily through their buyers and sometimes through regulatory mechanisms, to reduce perceived risk by adopting practices to minimize potential wildlife intrusion onto their farm fields. Specifically, growers were asked to remove surrounding non-crop (natural) vegetation presumed to harbor wildlife. This practice is expensive for growers to implement and has led to a significant loss of important natural habitat in the region.

The authors of a study in the Proceedings of the National Academy of Sciences assessed whether the presence of non-crop vegetation is associated with foodborne pathogen prevalence on farms. They used a detailed vegetation map and examined ~250,000 pathogen samples including enterohemorrhagic E. coli (EHEC), generic E. coli, and Salmonella bacteria. Although EHEC prevalence in produce was higher on farms near areas suitable for livestock grazing, there was no evidence that EHEC, generic E. coli, or Salmonella increased near non-grazed, semi-natural areas. Rather, pathogen prevalence increased most on farms where non-crop vegetation was removed.

The authors recommend that buyers, auditors, and regulators encourage science-based approaches to co-manage for environmental quality and food safety. The findings of this study suggest that the requirement for farmers to clear non-crop vegetation is unnecessary, at best, and is damaging to the natural environment. Government agencies and buyers can instead promote both food safety and ecosystem benefits by funding and encouraging practices such as vegetated buffers and wildlife-friendly fencing of riparian areas.

Practices to conserve vegetation and wildlife habitat will help sustain agricultural productivity by providing natural benefits such as pest control, water quality, groundwater recharge, and pollination services. These benefits are urgently needed for agriculture, and will be increasingly valuable over time. A diverse farming landscape, including non-crop vegetation on and near farms, promotes these benefits.

California has long been a global leader in agriculture. By addressing the serious issues of food safety and ecosystem benefits together, California has the opportunity to demonstrate a path toward harmonizing environmental quality, agricultural productivity and human health.

科学保护

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