



UNIVERSITY of CALIFORNIA  
**Agriculture & Natural Resources**



COOPERATIVE EXTENSION • YOLO COUNTY

70 Cottonwood Street, Woodland, CA 95695

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**To:** Interested Agriculture Producers in Sacramento, Solano and Yolo Counties

**From:** University of California Cooperative Extension, Yolo, Sacramento, and Solano Counties

Jenny Broome, Area Plant Pathologist

Morgan Doran, Livestock & Natural Resources Advisor

Mario Moratorio, Small Farm Urban Horticulture Advisor

**Date:** March 29, 2007

**RE:** Livestock and Crop Interface: Preventing Food-borne Illness Meeting, April 18, 2007 Woodland, CA

**Situation:** In September 2006, there was an outbreak of 205 cases of illness due to *E. coli* O157:H7 in spinach which included 3 deaths and 102 hospitalizations. The national Center for Disease Control (CDC) estimates that only about 1 in 20 of such illnesses is reported to the CDC, therefore the more likely number of people sickened by this outbreak was about 4000. Prior to this most recent outbreak, between 1995 and 2005, there had been seven illness outbreaks of *E. coli* O157:H7 associated with farms in the Salinas Valley, out of 15 illness outbreaks that were associated with lettuce and 1 with spinach nationwide.

The economic impact on spinach growers has been tremendous. The United Fresh Produce Association estimated that losses to processors alone reached \$50 million to \$100 million. That does not include losses to growers or retailers of spinach or other fresh-cut products. More than three-quarters of California's total production of salad greens comes from the Monterey County region, including the majority of the lettuce produced for the U.S. market, which is valued at \$1.3 billion annually.

The source of the *E. coli* O157:H7 has just been confirmed in a March 21, 2007 report by the California Food Emergency Response Team as being from the Paicines Ranch in San Benito County. Samples of *E. coli* O157:H7 that were genetically identical to the strain that caused the deaths and serious illnesses linked to the bagged spinach were found in feces from wild pigs, cows, and river water. While the exact method of contamination is not yet known, wild pigs could explain how the pathogen spread from cows on the ranch to the spinach field which is under a mile away.

*E. coli* O157:H7 is a strain of a common, gut-inhabiting bacterium that produces a deadly toxin. There are several other human pathogens that have been associated with food-borne disease in the US including *Campylobacter*, *Clostridium perfringens*, *Listeria monocytogenes*, *Salmonella*, *Shigella*, *Staphylococcus aureus*, and *Vibrio parahaemolyticus*.

**What UC is doing:** The Western Institute for Food Safety and Security based at the University of California Davis is a joint project of the University of California, the California Department of Health Services, the California Department of Food and Agriculture, the United States Department of Agriculture, the US Food and Drug Administration, and private industry. The staff and affiliated faculty conduct research and education programs to support food safety and security. It maintains a web site rich in information <https://wifss.ucdavis.edu/>



University of California and United States Department of Agriculture Cooperating

The University of California Food Safety program involves campus based extension specialists who conduct research and educational programs focused on microbial food safety, as well as biotechnology, food quality and food security. They maintain a web site on research and extension faculty programs at UC Davis, as well as current information from any UC campus covering the production, harvest, and processing of foods. Their web site includes an on-line self audit for Good Agricultural Practices, see <http://www.ucfoodsafety.ucdavis.edu/>

Individual researchers such as Dr. Rob Atwill, UC Davis School of Veterinary Medicine and colleagues are studying which vertebrates (livestock and wild species) are sources of the pathogen in the area where the 2006 spinach outbreak occurred. They are also studying several other regions of California. They will assess the climate, landscape attributes, and irrigation practices to determine if the contaminated produce is associated with certain farming practices or environmental factors. Other UC Davis faculty such as Dr.'s Trevor Suslow and Linda Harris have developed Good Agricultural Practices that can guide producers in how to assess and manage their farming operations and ensure they are doing the best they can to protect their produce from contamination.

Based on currently available research, a series of outreach events are occurring throughout California to assist both growers and ranchers to understand how such food-borne outbreaks might be occurring and how to use Good Agricultural Practices (GAP) to reduce the likelihood of any contamination happening.

In the Sacramento Valley UC Cooperative Extension academic staff, together with the UC Davis WIFSS Director, has planned an educational event for **April 18, 2007 in Woodland**. At this event we will have State and National experts who will outline the best available science of what is known about the food and livestock interface and how growers can produce the safest food. We will also have producers and ranchers who will address the regulatory climate and their experiences with a range of issues.

Most recent food-borne illnesses in California have been linked to leafy greens in the Salinas Valley, although in the past California apples, strawberries and almonds have also been linked to microbial illness outbreaks. The Sacramento Valley region is rich in the diversity of agricultural products including livestock, fruit and nut, vegetable, and field crops. There are produce growers that integrate animal production into their farming operations, as well as growers who are near or border livestock ranches or ranchland. The University of California Cooperative Extension is working hard to aid the region by providing the best available information on whether any food safety risks exist and how to avoid microbial contamination in the food supply. In addition, local extension advisors like Morgan Doran are cooperating with statewide research projects on testing livestock and wild species for potential sources of human pathogens.

#### **References cited/Additional Resources:**

Warnert et al. 2007. Expanded Research to Target E. coli Outbreaks. Research Update, California Agriculture, January-March 2007, 61:1:5-6. Available on-line at <http://calag.ucop.edu/0701JFM/resup01.html>

Western Institute for Food Safety and Security web site, section on E coli in spinach and leafy greens, [https://wifss.ucdavis.edu/ecoli\\_info.html](https://wifss.ucdavis.edu/ecoli_info.html)

California Food Emergency Response Team 2007. Investigation of an Escherichia coli O157:H7 Outbreak Associated with Dole Pre-Packaged Spinach. California Department of Health Services and U.C. Food and Drug Administration, Final Report, March 21, 2007. Available on line at <http://www.dhs.ca.gov/ps/fdb/local/PDF/2006%20Spinach%20Report%20Final%20redacted.PDF>

**Sacramento Valley Livestock-Crop Interface and Food-borne Illness Prevention Meeting  
April 18, 2007, 9 AM to 1:45 PM**

Norton Hall, 70 Cottonwood Street  
Woodland, CA 95695  
Phone: (530) 666-8143

Please RSVP to Kathy Berrettoni, UCCE Yolo County  
Email: [kberrettoni@ucdavis.edu](mailto:kberrettoni@ucdavis.edu) Phone: 530-666-8143

9:00 AM	Registration	
9:30 AM	Jerry Gillespie, Ph.D., D.M.V., Director of WIFSS, UC Davis	Frame the issues and program goals
9:45 AM	Dave Renter, D.V.M, Ph.D., Kansas State University	Prevalence, risk factors, and virulence of Shiga toxin-producing bacteria from cattle production environments – pastured based and feedlot operations.
10:15 AM	Rob Atwill, D.V.M., M.P.V.M., Ph.D., UC Davis	Minimizing environmental dissemination of E. coli from animal agriculture and free ranging wildlife in CA.
10:45 AM	Hank Giclas, Vice President of Western Growers	E. coli in CA vegetable crops and Good Agricultural Practices (GAP)s
11:15 AM	Dave Renter, Rob Atwill and Hank Giclas	Q and A session – The Animal and Crop Interface – Understanding and Breaking the Cycle with GAPs
11:45 PM	Lunch – cost \$8, but may be less due to co-sponsorships.	
12:30 PM	Rayne Thompson, Director, National Affairs International Trade & Plant Health CFBF	The regulatory environment and grower/rancher organizations: Current and future regulations.
1:00 PM	Paul Muller, Full Belly Farm (invited) James Durst, Hungry Hollow Farms, and Jim Yeager, Yolo County Cattlemen and Woolgrowers Association	Growers perspective and concerns on the issue
1:45 PM	TBA	Wrap Up

Organized by the University of California Cooperative Extension Yolo, Solano and Sacramento Counties, and the UC Davis Western Institute for Food Safety and Security. For more information please contact Dr. Jenny Broome, UCCE, 530-681-0216 or Dr. Jerry Gillespie, Director of WIFSS, UC Davis, 530-757-5700.

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70 Cottonwood Street  
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**March 29, 2007**

Sacramento Valley  
Livestock-Crop Interface and  
Food-born Illness Prevention Meeting  
April 18, 2007 in Woodland, CA

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**University of California and U.S. Department of Agriculture cooperating.**

