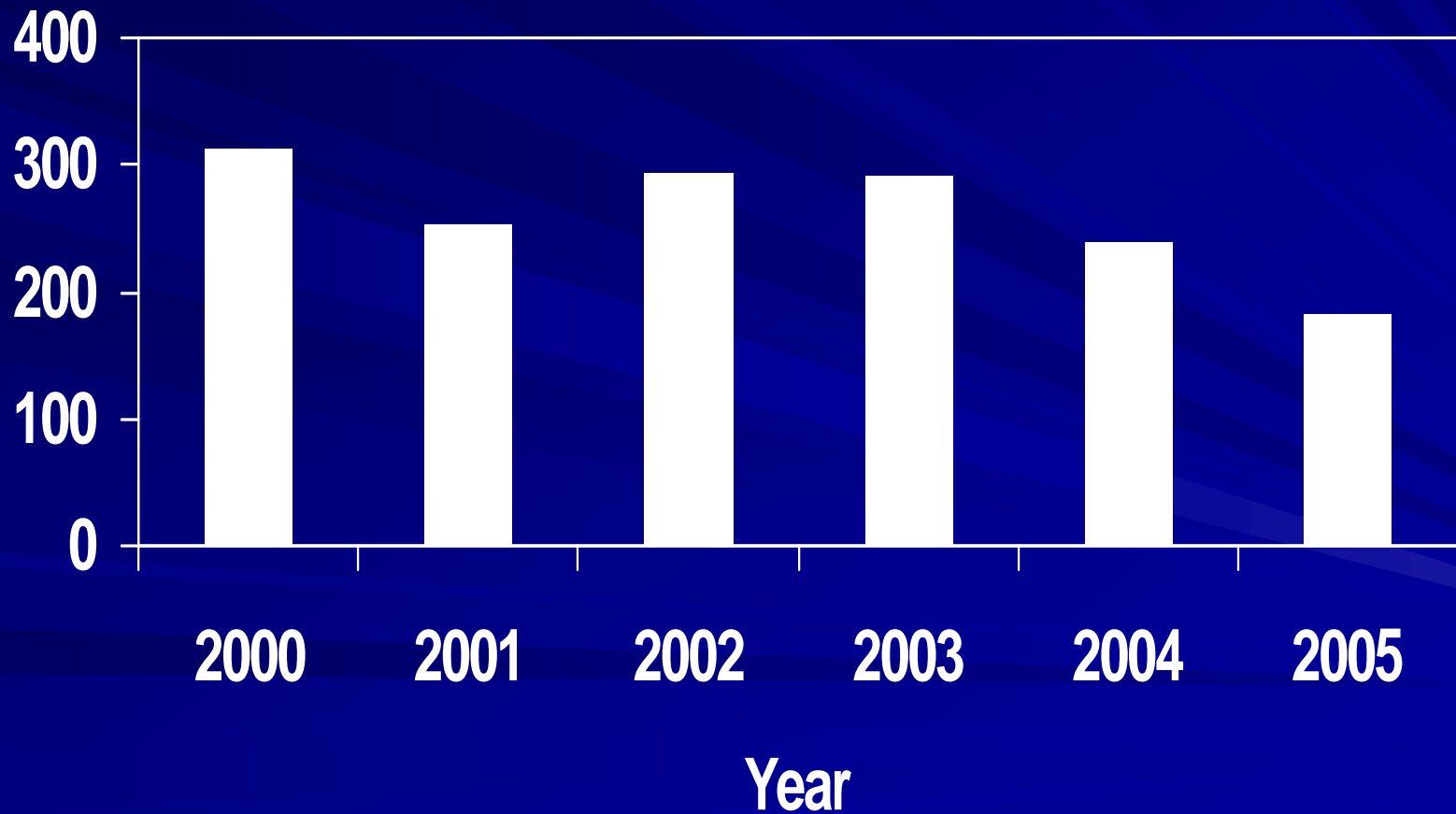


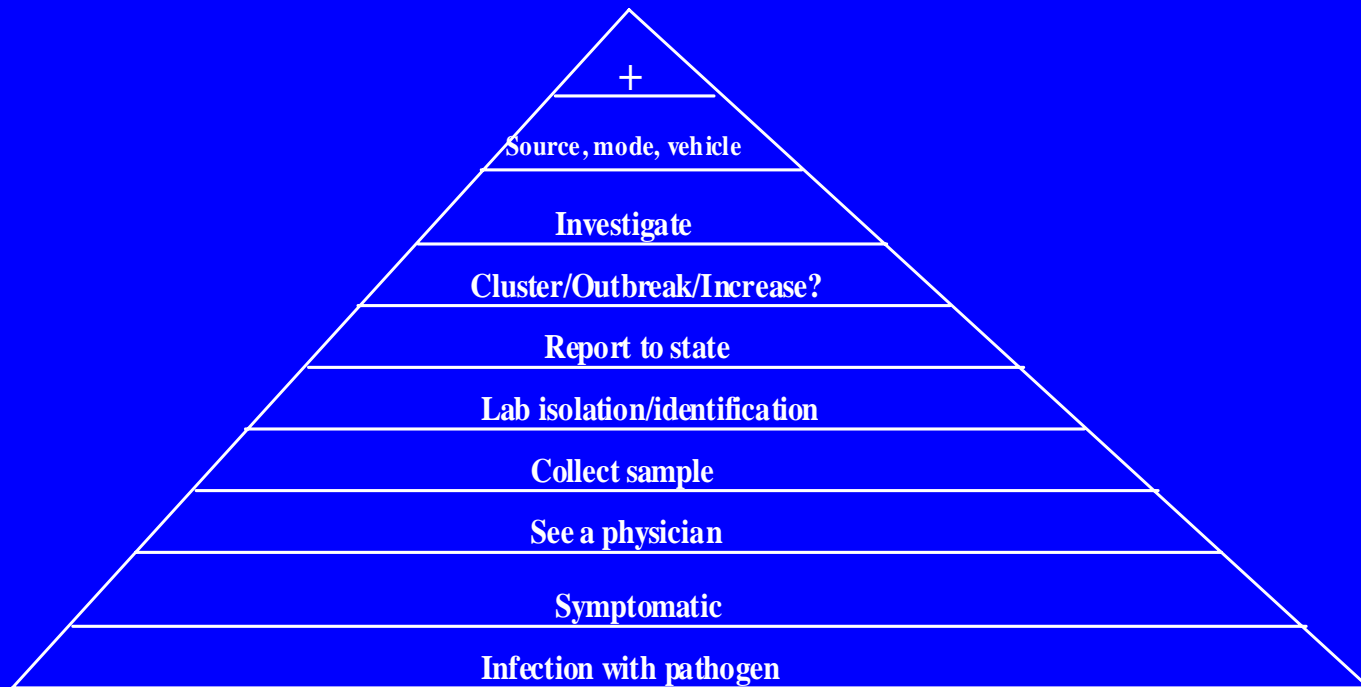
E. Coli O157:H7 and Spinach 2006

**Jeff Farrar, DVM, PhD, MPH
Branch Chief
Food and Drug Branch
California Department of Health Services**

Number of cases of E. coli O157:H7 reported in California - 2000-2005



Surveillance, Reporting, and Investigation of Foodborne Illnesses/Outbreaks in California



California Department of Health Services-Food and Drug Branch

CDC data estimates that for every reported case of O157, approximately 20 are unreported.

- Letter from FDA to California Firms that Grow, Pack, Process, or Ship Fresh and Fresh-cut Lettuce November 4, 2005
- “FDA is aware of 18 outbreaks of foodborne illness since 1995 caused by *Escherichia coli* O157:H7 for which fresh or fresh-cut lettuce was implicated as the outbreak vehicle. In one additional case, fresh-cut spinach was implicated. These 19 outbreaks account for approximately 409 reported cases of illness and two deaths. Although tracebacks to growers were not completed in all 19 outbreak investigations, completed traceback investigations of eight of the outbreaks associated with lettuce and spinach, including the most recent lettuce outbreak in Minnesota, were traced back to Salinas, California.”
- Letter from California State Health Officer to Western Growers – January 2006

CDHS Activities in Lettuce

- Met with lettuce industry numerous times over the last 2-3 years to attempt to obtain commitment from industry leaders to address the problem.
- Established California Food Emergency Response Team with FDA to promptly and thoroughly investigate outbreaks. Provided training in environmental investigations to team members.
- Established multiagency workgroup to conduct Environmental Sampling Project in the Salinas area.
- Helped write successful USDA grant to expand Environmental sampling project.
- Convened and coordinated workgroup composed of industry, FDA, FDB, and academia to produce a video entitled "Safer Processing of Fresh Cut Produce".
- Requested FDA to review and summarize all previous lettuce associated outbreaks.
- Met with local and federal officials to develop, coordinate, and document state, local, and federal efforts.
- Participate in WIFSS Lettuce Advisory Committee.
- Sent letter to Western Growers advising them of CDHS' concern and urging additional actions.
- Participate on Fresh Express Technical Advisory Committee.
- Developed and began implementing Lettuce Safety Initiative

E. Coli O157:H7 and Spinach

- CDHS notified of multistate investigation possibly linked to spinach on Sept 14. Thirty three PFGE matching isolates from 13 states.
- Illnesses in WI and OR were finding that most of the cases recalled eating bagged spinach.
- California Food Emergency Response Team investigators dispatched on Sept 14 to three possible firms identified in the early epi information.
- Natural Selections Foods in San Juan Batista, California initiated a voluntary recall on Sept. 15.

- **NUMBER:** 06-72**DATE:**September 15, 2006
- **STATE HEALTH OFFICER ANNOUNCES VOLUNTARY RECALL OF FRESH, PREPACKAGED SPINACH PRODUCTS THAT ARE POSSIBLY RELATED TO A MULTISTATE OUTBREAK OF E. COLI**
- **SACRAMENTO – State Public Health Officer Dr. Mark Horton announced today the voluntary recall of fresh, prepackaged spinach products manufactured by Natural Selection Foods of San Juan Bautista that are possibly related to a multistate outbreak of E. coli O157. Horton also confirmed one California illness associated with the outbreak: a Shasta County adult who was hospitalized and is recovering at home.**
“While the source of the contamination is still under investigation, Natural Selection Foods is voluntarily recalling its fresh, prepackaged spinach products as a precaution,” Horton said. “Consumers should not eat any fresh, prepackaged spinach until the source of the contamination that is causing this outbreak is determined.”

E. Coli O157:H7 and Spinach

#	Onset Month	Yr	State and County Where Outbreak Occurred		Ill	Hospitalized	HUS/TTP+	Deaths	Setting (Include As Much Detail as Possible)	Known or Suspected Transmission Route
1	Jul	1995	MT		74				Private home	Food
2	Sep	1995	ID		20					Food
3	Oct	1995	OH		11					Food
4	May	1996	IL, CT		61				Restaurant/private home	Food
5	Jun	1996	NY		7					Food
6	May	1998	CA	Stanislaus	2	1			Restaurant	Food
7	Sep	1998	MD	Talbot	4				Restaurant	Food
8	Sep	1999	CA	Multiple counties	8	4			Community	Food
9	Sep	1999	WA	Multiple counties	6	1			Community	Food
10	Oct	1999	OH, IN		47					Food
11	Oct	1999	OR		3				Health club	Food
12	Oct	1999	PA		41	7	2		Retirement center	Food
13	Jul	2002	WA	Spokane	29	7	1		University cafeteria	Food
14	Nov	2002	IL, WI, MN, SD, UT		24				Restaurant	Food
15	Sep	2003	CA	San Diego Co, Orange Co	27		1		Restaurants	Food
16	Sep	2003	ND	Grand Forks	5				Restaurant	Food/Food worker(?)
17	Oct	2003	CA	San Mateo Co	16	10	2	2	Retirement Home	Food
18	Nov	2004	NJ	Flemington	6	4			Restaurant	Food
19	Sep	2005	MN	Minneapolis Metro Area	12	2			Grocery	Food

E. Coli O157:H7 and Spinach

- Early epi investigation findings could not definitively identify a single firm or lot code.
- Using the best available information at the time, investigators targeted three possible processors for review.

- As more epidemiologic information was obtained over the next couple of weeks, the investigation focused on a single lot code (P227) of Dole Baby Spinach manufactured by Natural Selections Foods.

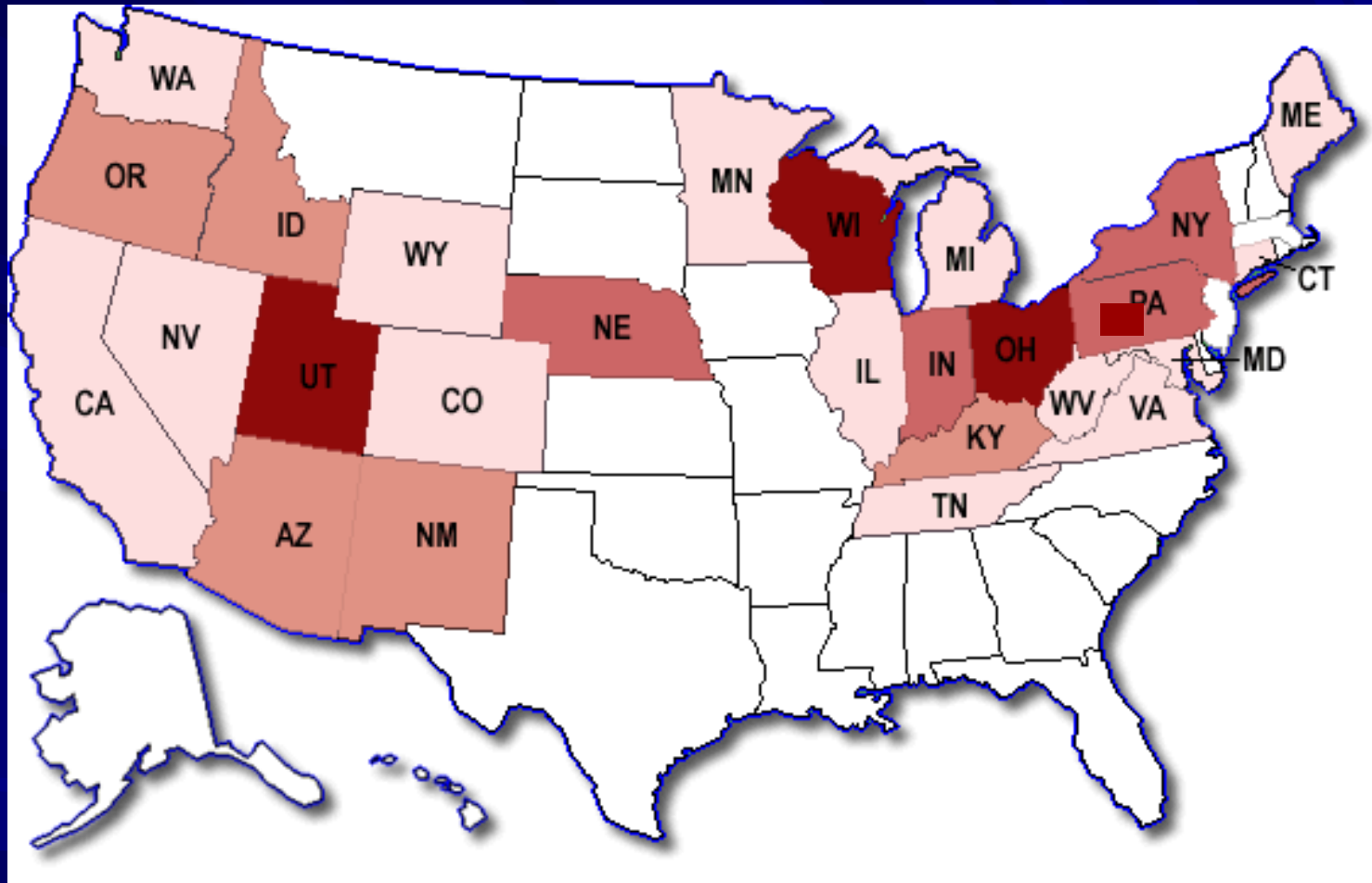


- Within three weeks from the beginning of the investigation, California Food Emergency Response Team investigators were able to determine that four farms supplied spinach for the single lot code and were able to initiate investigations on these four farms.

E. Coli O157:H7 and Spinach

- 204 confirmed cases in 26 states
- 1 confirmed case in one Canadian province
 - 104 hospitalizations (51%)
 - 31 Hemolytic Uremic Syndrome (15%)
 - 3 deaths

E. Coli O157:H7 and Spinach



1-4 cases

5-9 cases

10-14 cases

15 or higher



Thursday, October 5, 2006

E. Coli Kills Idaho Toddler; Spinach Plants Probed

THE WALL STREET JOURNAL.

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Thursday, October 12, 2006

**E. Coli Strain in Tainted Spinach Is Linked to California
Cattle Ranch**

The New York Times

Thursday, October 12, 2006

Source of Deadly E. Coli Is Found

Samples

Approximately 800 Environmental Samples Collected to date by the California Food Emergency Response Team.

- water, soil/sediment, cow and wild pig feces, field product, finished product

Preliminary Results:

- *E.coli* O157:H7 positive samples found on all 4 ranches
 - 9 of these samples from one ranch are a PFGE match with the outbreak strain (1 = water, 1 = wild pig feces, 7 = cow feces)

DHS, USDA-ARS, and UC Davis grant to study O157 in the environment



North looking South

Lessons Learned

- **Water, wildlife, workers, and manure are still the four most frequently identified risk factors in leafy green associated outbreaks.**
- **Research needs have been identified and prioritized.**
 - **No need to reinvent the wheel.**
 - **No need to focus on esoteric topics until the basic questions are answered.**
 - **We will never have all the answers and should not give any credence to those who say “wait until the science gives us the answers”. We know enough now to take some measured steps toward actively implementing risk reduction measures.**
- **Specialized training and dedicated resources in farm investigations and traceback investigations will help tremendously.**
- **In order to have a realistic chance of identifying the source, a very large number of environmental samples will need to be collected and analyzed using experienced, qualified microbiology labs with the most sensitive methods.**
- **Our understanding of the microbial ecology of O157 on farms in the Salinas Valley is extremely limited. New sampling and high throughput testing methods should be encouraged (in parallel with traditional methods).**
- **For streams/running water, Moore swabs, left for several days, generally is a far superior approach than one liter/one gallon grab samples.**

Current Efforts/Next Steps

- Continue efforts to determine the precise source and vehicle/vector for contamination of the spinach.
- Encourage industry to establish a standardized, verifiable, scientifically based on-farm good agricultural practices system that is implemented on 100% of farms 100% of the time.
- Participate in CSREES grant/study to look for O157 in water in the Salinas Valley.