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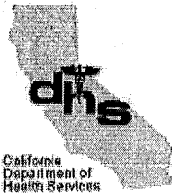
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State of California—Health and Human Services Agency
Department of Health Services



ARNOLD SCHWARZENEGGER
Governor

Date: May 3, 2004

To: The Record

From: Emergency Response Unit

Subject: Report of investigation of E. coli O157:H7 outbreak at San Mateo County retirement facility in October 2003

We are pleased to provide the following report on this investigation undertaken by our Unit.

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Investigation of *E. coli* O157:H7 Outbreak at San Mateo County Retirement Facility

April 30, 2004

Background

On October 31, 2003, the California Department of Health Services Division of Communicable Disease Control (DCDC) notified the California Department of Health Services Food and Drug Branch (FDB) of a cluster of illnesses due to *E. coli* O157:H7 in a retirement community in San Mateo County. An outbreak of sixteen infections with *E. coli* O157:H7 occurred among residents of a retirement community in Portola Valley, California. Thirteen infections were culture-confirmed; an additional three patients had bloody diarrhea or hemolytic uremic syndrome. The dates of onsets were October 9 through October 17, 2003. Ten patients were hospitalized and two patients died.

Based on the epidemiologic curve, a common source was the likely cause for infection for patients with onsets on October 9 and 10. To determine a possible vehicle, the Disease Control and Prevention unit of San Mateo County conducted a case-control study. There were five case-patients (with onsets on October 9 or 10) and 27 controls (residents who were well during the entire outbreak period). In the analysis of the data from the case control study, spinach was the only food item associated with illness. Sixty percent of patients compared with 11% of controls ate spinach from October 3 through October 5 (OR=12, p value=0.03). The spinach was prepackaged and prewashed. The spinach was not washed at the facility prior to serving. For additional information on the epidemiological investigation, contact the Division of Communicable Disease Control.

Summary

Environmental investigations at the retirement community, the produce distributor, and the processor did not reveal a likely source of contamination. Some employees at the retirement community did report gastrointestinal illness, but their symptom onset occurred on or after the onset dates for residents of the facility. No processing or repackaging occurs at the distributor. Spinach is held by the distributor in cold storage, as received from the processor, and shipped on a first-in, first-out basis. The processor receives spinach in large plastic bins from the field. The bins of spinach are cooled in a hydro-vac tube. Processing consists of cleaning by removal of extraneous material, washing in flume water containing [REDACTED] ppm free chlorine, and drying by centrifugation. The spinach is then filled into a perforated film bag and coded with a use-by date. The firm has a HACCP plan with documented monitoring of critical control points. At the time of the investigation, all spinach processing had already moved to the firm's plant in El Centro, California (including some of the processing equipment).

Environmental investigations of five fields that could have supplied spinach during the time frame of interest were conducted. Drag swabs and water samples that were collected were negative for *E. coli* O157:H7. One of the five fields is adjacent to the Salinas River in an area known to have large populations of wild animals including boar and coyote. Another of the fields is located in a valley bordered by the Santa Rita Creek. FDB has received reports that Santa Rita Creek floods after periods of moderate rain. Two other fields on the same ranch¹ were identified as possible sources of lettuce in two separate *E. coli* O157:H7 outbreak investigations.

¹ For the purpose of this report, a ranch is a group of fields cultivated by one grower in the same general geographic area.

Retirement Community: The Sequoias

Persons interviewed: Peggy Ecklund, Foodservice Director, and David Berch, Executive Chef

Date of Site Visit: November 3, 2003

Participants: Jeff Lineberry and Dr. Mary Palumbo (DHS-FDB), San Mateo County CD: Scott Nabity, San Mateo County EH: Frobie Ernest, Uli Conlan (served as translator)

Facility description:

The Sequoias is located at 501 Portola Road, Portola Valley, California 94028; telephone 650-851-1501. The Sequoias is managed by Sodexho, a foodservice and facility management firm. The United States headquarters for Sodexho is located in Gaithersburg, MD. The Sequoias retirement community includes three sections: a 320-bed independent living center; a 19-bed assisted living facility; and a 48-bed skilled nursing facility (SNF). Approximately 300 residents currently live in the independent living section, where they have individual apartments with small kitchen facilities. These residents come to the dining room for meals. Approximately 30 residents currently in the SNF are served meals on trays prepared with the same foods, in the same central kitchen, as those served in the dining hall. Cases occurred among residents of both the independent living facility and the skilled nursing facility. There were no illnesses among residents of the assisted living facility, where residents may either receive meals on trays or eat in a small dining room in their area. This lack of reported illnesses in one section may be attributable to the relatively small size of this unit. The food supplied to the residents of the assisted living facility is the same as is served in the other sections. The facility uses a five-week cycle menu (Attachment 1). A salad bar is available for lunch and dinner every day of the week. At the time of the outbreak, the salad bar was self-service and included a bowl of fresh spinach that could be consumed as part of the salad. The spinach was a pre-washed product, which was simply removed from the bag, placed into a large bowl, and placed on the salad bar on ice. The bowl of spinach would be refilled several times in the course of a meal. The salad bar was open for one hour at lunch, and at dinner for one and one-half hours. The salad bar closed 15 minutes before the end of the meal service. Lunch was served daily from 12:00 – 1:15 p.m., dinner from 5:00 – 6:45 p.m. The salad bar was available at every meal, and spinach was always on the salad bar during the time period of interest. Approximately one-half of a 2.5-pound bag would be used at each meal. At the end of a meal, the salad bar items are moved to the employee dining room. If not consumed there, the salad bar items are discarded before the end of the day.

Foodservice workers are assigned tasks on a predetermined schedule (Attachment 2). Salad preparation, cold food preparation, and hot food preparation are separate tasks performed by different people on any given day. For example, separating frozen ground beef patties for cooking is done by the "hot prep" person, whereas preparing items for the salad bar is done by the "salad prep" person. A worker assigned to "hot prep" on one day might be assigned to "salad prep" on another day. Review of the task assignments (Attachment 2) reveals no obvious opportunity for cross-contamination between meat products and salads by workers. Each employee has his or her own set of utensils, and is responsible for washing and sanitizing those utensils. When not in use, the utensils are stored in a bag-type carrying case in the employee's locker.

San Mateo County Disease Control and Prevention (SMC-DC) interviewed all food handlers, with in-depth interviewing of workers who had any absences from work during the month preceding the outbreak. One individual, who had left the firm and the country, could not be interviewed, but his wife reported that his absence was due to an upper respiratory illness. Some employees did report gastrointestinal illness, but their symptoms were generally milder than those reported with confirmed *E. coli* O157:H7 infection, and symptom onset occurred on or after the onset dates for residents of the facility. SMC-DC collected stool samples from all available food handlers on October 13. These samples were negative for *E. coli* O157:H7.

Ordering of food supplies is done by the Executive Chef. The chef reported that he generally orders produce two days ahead. He also stated that he plans orders a week ahead, and usually has four or five cases (four 2.5-pound bags per case) of spinach on hand. Usage rate depends on the menu, with the salad bar requiring approximately one bag/day and sautéed spinach or spinach salad with bacon dressing requiring four to five cases per meal. Neither sautéed spinach nor spinach salad with bacon dressing were on the menu for October 3-5, but sautéed spinach was on the menu for October 6. The chef does not keep a log or inventory of what is in the refrigerator each day. Invoices for produce purchases were obtained for September and October.

Produce is delivered by Lee Ray-Tarantino, a produce wholesaler, from one to six times per week. Deliveries usually occur on Monday, Tuesday, and Friday. Delivery occurs between 6:00 – 6:30 a.m. Only produce is loaded on the truck. The spinach is a pre-washed packaged product. The bags are perforated, with four 2.5-pound bags per case. The spinach delivered to the retirement center is usually Popeye's brand, but occasionally another brand is received, according to the chef. [Subsequent traceback information verified that only Popeye's spinach was delivered to The Sequoias during the suspect time period.] The bag label is shown in Attachment 3. Lee Ray-Tarantino is the sole supplier of produce to The Sequoias in accordance with Sodexo policy. Every case or container is stamped with the date of delivery according to staff (this was observed on all products in the walk-in refrigerator).

Produce is stored in a walk-in refrigerator that contains only produce, salad, and dairy items. There were some unwashed produce items (in original carton) in the cold room with ready-to-eat items (Attachment 29). Meats are thawed and stored in a separate walk-in refrigerator. The temperature in the produce walk-in was 33° F, according to the thermometer near the door. Ms. Ecklund commented that it usually isn't that cold (because of cold injury to produce). Employees may use a knife to open bags of spinach, or they may simply pull them open by hand. Food prep workers have their own utensils, including knives, which they clean and sanitize as needed. These utensils are used for different foods on different days. The worker who opened spinach bags on the dates of exposure was not present, and we were not able to inspect the condition of his knives. Another employee's knives were provided as an example. The cloth case showed food stains, but the knives appeared to be clean.

Hamburger patties are received frozen from Excel. They are separated for cooking by the hot prep person. They are cooked to 160° F as determined by a thermometer, according to staff. Investigators did not observe this procedure. Two types of thermometers are in use, tip-sensitive digital thermometers and dial thermometers. The thermometers are calibrated during production meetings with an ice-water mixture. This is supposed to occur daily, but sometimes production meetings are not held, and the thermometers are not calibrated. According to Ms. Ecklund, the thermometers are calibrated at least two times per week. Records of the calibrations are not kept.

The kitchen does not have a three-compartment sink for dishwashing. Everything except individual employee's utensils and fixed equipment (steam-jacketed kettles, grills) is put through the dishwashing machine. Utensils and food contact surfaces are sanitized with Mikroklene as needed (at least once a day). Mikroklene is an iodine sanitizer supplied by Ecolab, and used at 25 ppm. The sanitizer is dispensed at this concentration from an automatic dispenser. The cook checks the concentration of the sanitizer with test strips twice daily, and records in a log whether the concentration meets the standard of 25 ppm. If the concentration is less than 25 ppm, the cook reports this to a manager. The manager spot checks the logs to verify that the concentration is being monitored. The concentration also is checked by the Ecolab representative during maintenance visits.

Traceback Investigation

Invoices were collected for all spinach purchases by The Sequoias that may have been served from October 3 through October 5 (Attachment 4) based on a review of the menu at The Sequoias and staff statements on stocking practices. These invoices revealed that for the period from September 12 through October 4, all spinach consumed at The Sequoias was purchased from the produce distributor Lee Ray-Tarantino. These invoices (Attachment 4 & 5) were compared to incoming spinach shipments at Lee Ray-Tarantino.

From September 12 to October 4, Lee Ray-Tarantino received spinach from three firms, Lucky Strike Farms, River Ranch, and Capurro Marketing (Attachment 6). Spinach from Lucky Strike Farms is prepackaged in 2.5 pound bags with the "Metz Fresh" label. It is purchased for one customer based on a contractual obligation. This spinach is stored in a separate walk-in cooler at Lee Ray-Tarantino, segregated from the other spinach, and would not have gone to Sequoias, according to Mr. Tarantino. Lee Ray-Tarantino received one shipment of spinach from Capurro on September 24 (40 cases). Spinach shipments were received from River Ranch on September 15 (90 cases), 16 (70 cases), 17 (70 cases), 18 (140 cases), 20 (140 cases), 22 (160 cases), 24 (119 cases), 25 (140 cases), 26 (210 cases), 29 (90 cases), 30 (140 cases), October 2 (140 cases) and 3 (20 cases). Based on the firms reported spinach usage practices and a review of the receipt and shipment volume at Lee Ray-Tarantino during this time period, the investigation focused on the spinach received from September 25 through October 3. These shipments were received exclusively from River Ranch.

A review of the shipping invoices and processing records at River Ranch allowed us to trace the spinach that filled the orders of interest back to the ranch on which it was grown. Each of the shipments was filled from spinach produced by River Ranch on only one day but several of those production days used spinach from more than one ranch. The farms identified by River Ranch as suppliers of spinach used in the dates of interest were: American Farms Ranch 2, Lot 4 East; American Farms Ranch 1, Lot 40; Chinn Ranch 8A; Fanoe Home 4C; and Fanoe Home 4D (Attachment 7).

Distributor investigation

Distributor: Lee Ray-Tarantino; 131 Terminal Court, S. San Francisco, CA 94080

Person Interviewed: Mr. Paul Tarantino (company president)

Date of Site Visit: November 4, 2003

Participants: Investigator James Sigl (DHS-FDB)

Firm/Facility Description:

The Lee Ray-Tarantino produce distribution warehouse is located in the Golden Gate Produce Terminal in South San Francisco. Lee Ray-Tarantino services the greater San Francisco Bay Area, south to Carmel, east to Sacramento, and north to the Napa Valley (Attachment 8). The walk-in cooler where the firm stored "Popeye" brand pre-packaged spinach contained a dial thermometer mounted on the wall near the door that read 38° F at the time of inspection. The entrance to the produce dock was covered by a strip curtain as was the door of the walk-in refrigerator. The walls and ceilings of the walk-in refrigerator were smooth and appeared clean. The floors of the walk-in refrigerator were smooth and dry. All products in the walk-in cooler were pre-packaged and affixed with a colored tag on which the receipt date was printed. The "Popeye" brand spinach present on November 4 had a receipt date of November 2. Mr. Tarantino said that spinach is shipped out within two days of receipt on a first-in, first-out basis. Lee Ray-Tarantino delivers

produce to The Sequoias in a refrigerated truck. Distribution information was collected for all Lee Ray-Tarantino spinach sales from September 13 through October 2 (Attachment 9).

Processor environmental investigation

Processor: River Ranch Fresh Foods, LLC. 1085 Abbott Street, Salinas, CA 93901

Dates of site visit: November 18-19, 2003

Persons interviewed: Anne Pauly, Director of Quality Assurance; Rafael Rodriguez, Inventory Foreman; Brian Snow, Farm Operations

Participants: Investigator James Sigl and Dr. Mary Palumbo (DHS-FDB); Lorraine Dixon (US FDA)

Facility description:

River Ranch is a large salad processor that produces a variety of lettuce, cabbage, spinach, and other fresh salad items in pre-washed, ready-to-eat form. Lettuce and spinach used in these bagged salads are produced in the Salinas Valley, with some lettuce from the Huron area of the San Joaquin Valley in transitional seasons (fall and spring). Production occurs at this facility approximately eight months of the year (mid-March through mid-November). The remainder of the year, production takes place at the firm's plant in El Centro, California. At the time of our site visit, spinach production had been suspended in Salinas and begun in El Centro. The plant runs six days per week, with two production shifts and a sanitation shift.

Process: The spinach processing line had been partially disassembled at the time of our visit but the process was described in detail and the production area and equipment remaining was evaluated (Attachment 10). Spinach is received from the field in large plastic bins with a pallet tag, which shows the grower number, field, and lot number. This information is entered in the computer manually, and a label is generated and placed on each bin that shows the transaction number, bin number, and an assigned tag number. This tag number follows the product through the process and can be linked to an individual bag of spinach through the date code. The bin tags are color-coded by day. The bins are held in a shaded holding area until they can be cooled in the hydro-vac tube. Spinach is cooled by vacuum, without water mist application. Spinach is cooled to less than 38° F (usually 34-35° F) in 25 minutes. The temperature of the product entering and exiting the tube is recorded (Attachment 11). The spinach is then weighed and moved into cold storage. Processing consists of dumping the spinach into a bin, from which it is picked up on a conveyor and spread with a spreader bar. The spinach passes a mesh screen for removal of small pieces and extraneous material, and then passes over an inspection line for manual removal of foreign matter or discolored product by gloved employees. A flume carries the product to centrifuge driers. The water in the flume is maintained between [REDACTED] F by a "chiller" unit. The water circulates between the "chiller" and the flume. In the "chiller", the water runs over refrigerated coils. The first critical control point in the firm's HACCP plan requires a free chlorine level from [REDACTED] ppm in the flume water and a total chlorine level between [REDACTED] ppm. The pH is considered a critical point and it is monitored as well. The target pH range of the flume is between [REDACTED] and [REDACTED]. The pH is adjusted with liquid citric acid when necessary. The target chlorine range is maintained by the addition of liquid sodium hypochlorite (12.5%) to the "chiller". The sodium hypochlorite is automatically added by the use of a pump. The chlorine levels are tested hourly by quality control staff with a LaMotte DPD/IA test kit for free chlorine and a sodium thiosulfate based kit for total chlorine. The results of these tests are recorded in a log (Attachment 12). If the chlorine level is too high, staff turn the pump off until the chlorine level returns to the desired range. If the chlorine level is too low, additional sodium hypochlorite is added. During the investigation, River Ranch was operating one salad packing line. Quality control testing (including free and total chlorine testing, pH testing, and temperature monitoring) of the salad flume was observed at the time of our visit.

Flume water is recycled through the chiller for 4 hours, and then discarded. The flume trap is inspected hourly to determine the type of material that is sedimenting in the flume wash (Attachment 13). The spinach is dried by centrifugation, dumped onto conveyor belts, and carried to filling machines. "Popeye" brand spinach is packaged in a perforated film bag, net weight 2.5 pounds. Each bag is marked with a use-by date (date of production plus 17 days) and the production line, shift, and production location of the bag. The foodservice-size bags contain 2.5 pounds of product and are packaged in cases of four. The case is labeled with a bar code tag that can be used to access information on the farm and processing procedures used in producing the product.

Finished product is moved from the processing plant to the shipping warehouse in refrigerated trucks. Trucks picking up shipments must be precooled and inspected for cleanliness. If the interior of the truck has an odor from a previous shipment, the truck is sent away for cleaning. Internal temperatures of the product are recorded for some customers. River Ranch keeps track of the pallet numbers used to fill each shipment. From the pallet number, the firm can determine the production date and shift. Transaction numbers are recorded on each shift's production record. Each transaction number is assigned to spinach harvested from a particular field on a particular date (Attachments 14 - 19).

Food Safety Training for Employees: Workers are trained in Good Manufacturing Practices before the season begins (March for Salinas, October for El Centro) (Attachment 20). This training is conducted as a part of a day-long safety training and lasts approximately one-half hour. The training includes overhead slides as well as handouts. If an employee does not attend the training session, they cannot work in the plant according to Ms. Pauley. In addition to this training, there are periodic update sessions that are designed to discuss day-to-day food safety issues as well as to reinforce GMP's (Attachment 21).

Facility Sanitation/Cleaning: Ecolab supplies all chemicals for facility and equipment sanitation. Ecolab also performs unannounced audits of the sanitation crew. No deviations were reported in normal cleaning/sanitizing between September 24 and October 2, 2003. Hand sanitizers at the entrances of the processing area contain quaternary ammonia at 200 ppm. These are verified with test strips, and a log is kept of the results (Attachment 22). The boot sanitizer is a 1200 ppm quaternary ammonia solution sprayed at boot level across the walkway. The boot sanitizers mix stock solutions of quaternary ammonia with water to a final concentration of 1200 ppm. The mixing of the stock quaternary ammonia solution and water is done automatically, and the mechanism is routinely checked by Ecolab technicians. River Ranch uses test strips to verify the concentration is at 1200 ppm and a log is kept of the results (Attachment 22).

The plant is cleaned nightly by a cleaning crew of 24 individuals after production is finished. The cleaning crew is led by a supervisor and an assistant supervisor. The cleaning crew supervisor reports to the Director of Quality Assurance. The following chemicals are used by the cleaning/sanitizing crew: 64 ounce Yellow LP / Amarillo LP (chlorinated alkaline cleaner) - added with 32 ounces of Green II / Verde II (Sodium Hypochlorite Solution) in a 15 gallon foamer; 6 ounce Quorum Clear (liquid quaternary ammonia sanitizer) in a 15 gallon sprayer (200 ppm for belts, equipment, etc.); 16 ounces of Quorum Clear (liquid quaternary ammonia sanitizer) in a 15 gallon sprayer (1200 ppm for floors); 0.5 ounces of AC 600-E (acid) in a one gallon sprayer.

The spinach field bins are washed in a bin-washer with Salinas city water and Yellow II/Amarillo II, a low-foaming, liquid chlorinated alkaline cleaner (target range 2457 - 2835 ppm). The water is not heated.

Facility Pest Control Program: Ecolab provides Pest control services under contract. This includes bait stations outside the building and wind-up traps inside.

Quality Assurance/Quality Control Operations:

The firm has a HACCP plan, in which the flume trap, free chlorine, temperature, and pH of the wash water, and the metal detector on the packaging line are considered to be Critical Control Points. Monitoring records for the spinach processing HACCP plan were reviewed for the production dates identified (September 25 through October 1). During processing, a QA technician records the temperature (■■■■), pH (range ■■■ to ■■■), free chlorine (range ■■■ to ■■■ ppm), and total chlorine levels (range ■■■ to ■■■ ppm) of the spinach flume water hourly in the HACCP logs. During the nightly sanitation shift, the QA lab checks the concentration of the Yellow II/Amarillo II twice to ensure it is between ■■■ to ■■■ ppm. At the end of each sanitation shift and before production begins, a microbiological technician swabs the lines and equipment. The technician swabs 8-10 food contact surfaces per day. The choice of locations to swab is random. The technician is trained by Primus Labs. The swabs are then plated on Petrifilm for Standard Plate Count and coliform/E. coli (Attachment 23). ATP testing is conducted on a weekly basis using the Lightning (VIO Control) system. The QA standards for the ATP test are: from ■■■ is considered "clean", from ■■■ is considered "warn" and any reading ■ or greater is a "fail" and necessitates re-sanitizing. The firm also conducts Listeria environmental swabbing on a weekly basis. These swabs are sent to Primus Labs for testing. A review of the QA logs revealed no Critical Control Point failures.

Farm Investigation

Participants: Investigator James Sigl and Dr. Mary Palumbo (DHS-FDB); Lorraine Dixon (US FDA)

Common Practices:

Spinach is harvested approximately 25 days after planting. Primus Labs third-party audits were obtained for each of the five fields visited (Attachment 26). Fungicides and fertilizers are applied as needed. Weeding is done 10 days before harvest by a crew of about ten workers with hoes. Harvesting is done by machine. The harvester cuts one row at a time and cuts the spinach just above ground level. The cut spinach moves up a conveyer belt and drops into bins located on a trailer pulled by a tractor adjacent to the harvester. Harvesting was not observed during this investigation as the spinach harvest in the Salinas area had finished before our investigation began. Ranch maps were obtained for each farm (Attachment 24). Photos were taken of each farm (Attachment 29).

American Farms - Ranch 2, Lot 4 East; Ranch 1, Lot 40

Date: November 18-19

Grower: American Farms

American Farms, Ranch 2 Lot 4 East GPS Coordinates:

N 36° 33.787'

W 121° 31.884'

American Farms Ranch 2, Lot 4 East is a 4.6 acre lot located off of Chualar River Road just to the west of the town of Chualar. The field is between the Hwy 101 freeway and the Salinas River just north of the Chualar River, and not immediately adjacent to either. The ranch headquarters is located at the eastern edge of the field. Mr. Gilbert Rodriquez is the ranch manager. Lot 4 East was irrigated using well water (Attachment 25).

American Farms, Ranch 1 Lot 40 GPS Coordinates: N 36° 31.740'

W 121° 30.656'

American Farms Ranch 1, Lot 40 is a 12.9 acre plot located at the intersection of Broome Road and Ioletta Road, between Highway 101 and the Salinas River. It is adjacent to the Salinas River. The Salinas River is

habitat to a variety of wildlife. Mr. Israel Morales is the ranch manager. The "wet date" (date of first irrigation) of Ranch 1, Lot 40 was August 31, 2003. Fertilizer usage date can be found in Attachment 25.

Chinn Ranch 8A

Date: November 18-19 and December 9 (drag swab/Santa Rita Creek water sampling)

Grower: Comgro

Chinn 8 GPS Coordinates:

N 36° 43.566'

W 121° 41.737'

The Chinn 8 Ranch is a 15-acre plot located just north of the intersection of Boronda Road and San Jon Road. Only 5.5 acres of this plot were used for regular spinach during the spring 2003 growing period. The ranch is lower than the surrounding landscape. On the west side are approximately a dozen structures (houses and barns). About a mile to the south, adjacent to Boronda Road, is a small home with adjacent chicken coops. The Chinn 8A was irrigated with water from CSIP turnout number 266. Composted grape pumice (Comgro compost lot #160) was spread by the grower on 4/23/02. Mr. George Fontes of Comgro stated that the only feedstock used in this lot of compost was grape pumice. Other chemical amendments were also added (Attachment 25). The Santa Rita Creek flows along the east side of the Chinn 8.

The Chinn 8 Ranch is subject to flooding after rains, due to overflow from the Santa Rita Creek. Monterey County employees took a sample of water from Santa Rita Creek, 1000 feet above the pump station on May 16, 2003 (Attachment 27). The sample was tested for fecal and total coliform counts. Fecal coliform levels were 3000 per 100 ml and total coliform levels were 24,192 per 100 ml. During our field investigation on November 18, a backhoe was observed digging the creek bed deeper. FDB performed drag swab and water sample testing on December 15. No E. coli O157:H7 was found in these samples (Attachment 28).

Fanoe Home 4C/4D

Date: November 19

Grower: Nick Fanoe of Jim Fanoe, Inc.

Fanoe Home GPS Coordinates:

N 36° 38.432'

W 121° 32.988'

The Fanoe Home Ranch is located east of Highway 101 just north of Alisal Road and east of Old Stage Road. The Fanoe Home 4C and Home 4D Ranches are each 8.7 acres and they are located adjacent to each other. There is a farmhouse on the property. Irrigation water is stored in earthen reservoirs. Mr. Brian Snow informed us that Mr. Jim Fanoe often swims in one of these reservoirs. The Fanoe Home 4C was irrigated on August 27, 2003. The Fanoe Home 4D was irrigated on August 30, 2003. Mushroom compost and chemical amendments were used (Attachment 25).

Recommendations:

1. At the Sequoias, procedures should be established for proper washing of employee utensils (knives). These utensils should be washed, rinsed, and sanitized in a 3-compartment sink as frequently as needed.
2. At the Sequoias, conversion to thermocouple thermometers from dial thermometers should be accomplished as soon as possible. Calibration logs should be maintained for all thermometers.

3. All fresh-cut processors should review the Good Agriculture Practices with producers of crops intended for fresh consumption. Special attention should be paid to fields that flood, because of the possibility that flood waters are carrying contaminated run-off from livestock feeding areas, wild life areas, or other sources of contamination that might cause the soil to contain pathogens. Special attention should also be given to farms/fields using compost, especially compost blends containing manure, to assure that adequate composting/pathogen inactivation procedures and cross-contamination prevention techniques were followed.
4. Because Chinn Ranch was determined to be a possible source of lettuce in two previous outbreak investigations, further investigation of this ranch is needed.

Contributing Factors:

Contaminated Food Eaten Raw

Attachments

1. The Sequoias cycle menu
2. The Sequoias work schedule
3. Popeye's Spinach label
4. Spinach Invoices: Lee Ray-Tarantino to Sequoias (collected at Sequoias)
5. Spinach Invoices: Lee Ray-Tarantino to Sequoias (collected at Lee Ray-Tarantino)
6. Spinach Invoices to Lee Ray-Tarantino (Collected at Lee Ray-Tarantino)
7. Traceback flow diagram
8. Lee Ray-Tarantino Company Information
9. Tarantino: Spinach deliveries 9/13 - 10/2/03
10. River Ranch Spinach Processing Flow Diagram
11. Vacuum Cooling Log Sheets (9/25 - 10/1/03)
12. River Ranch Flume Process Water Inspection Log
13. River Ranch Flume Trap Inspection Logs (9/25 - 10/1/03)
14. Records Tracking 9/25/03 Shipment
15. Records Tracking 9/27/03 Shipment (20 cases)
16. Records Tracking 9/27/03 Shipment (70 cases)
17. Records Tracking 9/29/03 Shipment
18. Records Tracking 9/30/03 Shipment
19. Records Tracking 10/2/03 Shipment
20. River Ranch Pre-Season Orientation Training Attendance Sheets and handouts
21. River Ranch GMP Update Training Attendance Sheets
22. River Ranch Hand and Foot Dip Records
23. River Ranch Daily Microbiological Line Swab Report (for spinach line)
24. Ranch Maps
25. Irrigation Fertilization Records
26. Primus farm audits
27. Chinn 8A Monterey County Coliform Test Results (5/19/03)
28. 12/15/03 sampling LAR Forms and Report of Sample Analysis
29. Photos- The Sequoias and Farm Investigation