



currently available. The proposed standards do decrease the allowable proportion of wild fishmeal that may be fed to organically farmed fish over the next several years. It is anticipated that as the organic seafood industry grows, organic feed substitutes will be developed and become more accessible.

Additional concerns are raised when fish are farmed in open-net pens in large bodies of water. Waste, pathogens, and parasites can be released into the surrounding environment, threatening the wild fish population. Opponents to the proposed standards think organic fish farms in open water should be required to recover waste to prevent exposing the wild populations to such pollutants. Inland fish ponds, on the other hand, are contained and do not encounter the same problems.

Some consumers oppose the farming of all carnivorous finfish, such as salmon. The alteration of the diet to include plant-based foods fails to accommodate the natural diet of the fish. As a result, artificial colorants are added to the feed of farm raised salmon to give the flesh the pink pigment found in wild salmon. Wild salmon absorb carotenoids through the krill and shellfish they consume, thus giving them the characteristic pink color. Additionally, critics claim the living conditions are inconsistent with the natural environment and infringe on the innate behavior of the animal.

It is now in the hands of the USDA to approve or modify the proposed standards. Even without opposition, it is a long process so it may be years before consumers are able to find USDA-certified organic fish in their markets.

*Sources:*

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Available at: <http://www.washingtonpost.com/wp-dyn/content/article/2008/11/19/AR2008111903787.html>

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Duchene, Lisa. "Organic rules advance," *Seafood Business Magazine*, Feb. 10, 2009. Available at:

<http://www.seafoodbusiness.com/index.asp?ItemID=3977&rcid=268&pcid=267&cid=268>

## NOROVIRUS: BIG BUG ON CAMPUS

*A little hand-washing can go a long way*

by

Kristen Frey, CSU Food Science Student

The majority of college students are concerned with finishing papers, studying for exams and having enough time left to hang-out with friends. Following mom's advice about washing hands before meals? Not too high on the priority list. But if anything can be learned from the recent outbreaks of norovirus on university campuses, it would be that following mom's hand-washing advice isn't just for washing away ink stains.



The University of Connecticut, Catholic University of America, University of California – Santa Cruz, and Bates College all have reported outbreaks of norovirus among their students in the last few months. In addition, the University of Arizona, Georgetown University, and University of Southern California experienced outbreaks of the stomach bug last fall, and 63 University of Denver students were sickened in April 2008. Norovirus's stability in the environment, low infective dose, and willingness to travel contributes to its frequent appearance on college campuses.

Noroviruses are a family of viruses (also called caliciviruses and Norwalk-like viruses) that cause gastroenteritis, a type of "stomach flu," in humans. Note, this is a different illness than the respiratory "flu" illness caused by the influenza virus. Because the illness is caused by a virus, antibiotics and other treatments have no effect on the course of norovirus infections. Norovirus was first identified in 1968, but interest has increased as we have become more aware of the frequency of occurrence.



Symptoms of norovirus infection most often include nausea, vomiting, diarrhea and stomach cramps. Some individuals may also experience a low-grade fever, chills, head and body aches, and general malaise. The onset of symptoms is

usually sudden and the duration is brief, lasting only one to two days. Symptoms typically start 24 to 48 hours after ingesting the virus. Children usually experience more vomiting than adults. People are contagious not only when they show symptoms but also for an additional two weeks after recovery.

Norovirus is highly contagious and spread by the fecal-oral route, either by ingesting contaminated food or through direct contact with an infected individual. Environmental and inanimate objects, such as banisters or salt and pepper shakers, may serve as a source for transmission of the virus. The Centers for Disease Control and Prevention (CDC) estimate that noroviruses account for half of all food-borne gastroenteritis illnesses in the U.S. each year, approximately 23 million cases.

With all this said, what steps can be taken to reduce the risk of contracting this disease? Hand wash, hand wash, hand wash!!! Proper hand washing after using the bathroom and before eating food is important to prevent the spread and contraction of diseases. Proper hand washing means using warm water and lathering hands with soap for 20 seconds (two rounds of "Happy Birthday") before rinsing. Practicing proper personal hygiene is important not only for food handlers but for any individual who lives in close quarters with others or comes into contact with many people throughout the day, i.e. university students. Hand contact surfaces, such as faucets and door knobs, can be disinfected with commercial wipes or a bleach solution of one teaspoon chlorine bleach to one quart of water.

Armed with knowledge and a bottle of soap, students may be able to avoid norovirus infection and prevent a single case of gastroenteritis from turning into an outbreak.

*Sources:*

CDC Technical Fact Sheet About Noroviruses. Centers for Disease Control and Prevention. Available at:

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<http://www.cdc.gov/ncidod/dvrd/revb/gastro/downloads/norofoodhandlers.pdf> . Accessed February 18, 2009.

## FOOD SAFETY TIPS FOR THE INTERNATIONAL TRAVELER

*Cook it, wash it, peel it, or avoid it*

by

Juan C. Leon, D.V.M., CSU Food Science Student

**W**ho doesn't enjoy a great vacation? Unfortunately, millions might not. According to the Centers for Disease Control and Prevention (CDC), 30-50% of international travelers suffer from traveler's diarrhea, often during the first few days of a trip. This is a generally self-limiting disease caused by Enteropathogenic *Escherichia coli*. Additionally, many travelers may be affected by other foodborne diseases such as norovirus, infectious hepatitis, typhoid fever, cholera, and giardiasis, which may have more serious consequences and longer duration.

Symptoms of foodborne illness may include vomiting, diarrhea, headache, malaise, fatigue and dehydration. Foodborne illnesses occur most often when bacteria, viruses, parasites, or chemicals contaminate food or water. Where and what we choose to eat and drink may be the most important decisions we make while on vacation.



According to Richard H. Linton, Food Safety Extension Specialist at Purdue University, commonly implicated foods include: foods from animal origin (poultry, meat, seafood, eggs, and dairy items), foods grown near the soil (vegetables and spices), or foods that come into contact with contaminated water (seafood and washed fruits/vegetables). Additionally, contaminated water, as a liquid or solid ice, can be a common vehicle for disease.

Anyone can become sick from eating contaminated food, but certain people are more vulnerable and these individuals should pay extra attention to food choices while abroad. Individuals at higher risk include infants, pregnant women, the elderly, and people that are immunocompromised either due to disease or the use of immuno-suppressive medications.



Fortunately there are several precautions travelers can follow to reduce their risk of contracting a foodborne illness:



- According to the CDC, travelers should avoid salads, uncooked vegetables and unpasteurized milk or milk products and only eat foods that have been cooked and are still hot.
- Avoid consuming runny eggs and undercooked beef, pork, poultry, seafood. Pork and lamb should be well done; beef can be medium.
- Eat fruits and vegetables that have been thoroughly cooked. Fruits with a thick covering like citrus fruits, bananas and melons, which you peel yourself, are generally safe to eat if first washed in clean water. Avoid sandwiches made with raw vegetables.
- Do not purchase foods from street vendors.
- Avoid buffets, restaurants, and retail markets that appear unclean. If hot foods are not hot and cold foods are not cold, they should not be eaten. A look to see that the person handling your food appears clean and has on clean clothing is also advised. Eat meals in one sitting and do not take leftovers with you.
- In developing countries, avoid tap water in all forms – ice, by the glass, and for brushing your teeth.
- Consuming large-species fish is not recommended as these may contain unsafe levels of chemical toxins acquired during their lifetime. These toxins cannot be inactivated by cooking because the chemicals are resistant to high-heat.
- Finally, always remember to wash your hands or use hand gel with more than 60% alcohol prior to eating.
- If necessary, travelers can find food sources that are considered safer than those mentioned above. For example, sodas and bottled water may be used instead of tap water. Canned, bottled and pasteurized foods are heat treated to ensure safety. Bottled water should be in sealed, tamper-proof containers. Coffee, tea and other hot beverages are considered relatively safe even if full boiling is not assured. Breads, tortillas and other non-cream-filled baked goods are also a good choice as these products do not readily support the growth of pathogenic microorganisms. Condiments in sealed packages are a safer choice than unsealed mayonnaise,

ketchup and salad dressing. Infant formula should be prepared with boiled water.

The FDA reports that some drugs used abroad for treating diarrhea have been linked to nervous system complications so take anti-diarrheal tablets with you, as well as a travel-size container of hand sanitizer. It is often a good idea to bring along a few granola bars in case safe food choices are limited. Following these tips may help you avoid an unwanted souvenir from your trip! A 2-page flyer, “Stay Healthy while Traveling Abroad,” is available from the FDA on-line at: [http://www.fda.gov/consumer/updates/travel\\_health062308.pdf](http://www.fda.gov/consumer/updates/travel_health062308.pdf).

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<http://www.ces.purdue.edu/extmedia/FS/FS-11/FS-11.html>

## ALLERGY ADVISORY LABELING

by

Twila Henley, CSU Food Science Student

**F**ood allergies are estimated to affect around 1-2% of the adult population and up to 8% of children less than 3 years of age. These statistics indicate a need for awareness regarding current allergy advisory labeling. Major food allergens include: milk, egg, fish, crustacean shellfish, tree nuts, peanuts, and soybeans. These allergies account for about 90% of food allergies, according to the U.S. Food and Drug Administration (FDA). Although it is not an allergen, gluten is another common ingredient that some consumers must avoid. Avoidance of the offending food is the only way to manage food allergies and other food intolerances and this requires reading labels carefully.

In the United States, the most current legislation addressing food allergy labeling is the Food Allergen Labeling and Consumer Protection Act of 2004. This law makes it mandatory (as of January 1, 2006) for food manufacturers to clearly identify the source of all ingredients containing the eight most common food allergens. Before this legislation,

ingredients were listed by their common names, but their sources were not identified. Now, the name of the food source of a major food allergen must appear in parentheses following the name of the ingredient, for example “flour (wheat)”, or immediately after or next to the list of ingredients in a “contains” statement, such as “contains wheat.”

While this is a step in the right direction, there are still no labeling requirements for separate products that might come into contact with allergens during manufacturing. Additionally, there are over 30 different types of advisory labeling, making it difficult to interpret labels. Also, manufacturers are allowed to use the terms “may contain” a major allergen, or “produced in a facility” that also uses a major allergen. Because of this ambiguity and pressure from consumer groups, the FDA recently held hearings on ways to simplify allergy warning labels on foods. The goal of the FDA is to assist manufacturers in using allergen advisory labeling that is truthful and not misleading, conveys a clear and uniform message, and adequately informs food-allergic consumers and their caregivers.

Hopefully soon, new legislation will be in place to clear up the confusion regarding food labels. Even then, consumers with an identified food allergy are advised, in case of accidentally ingestion, to recognize the early symptoms of an allergic reaction and know how to respond. Symptoms may include hives, flushed skin or rash, tingling or itchy sensation in the mouth, facial swelling, abdominal cramps, coughing or wheezing, dizziness or lightheadedness, difficulty breathing, and lack of consciousness. The FDA advises persons with a known food allergy who begin experiencing symptoms to initiate treatment and seek medical attention immediately if symptoms progress.

*Sources:*

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- Schwartzmann L. “Food Allergy Labels Too Vague,” WebMD 15 Sep. 2008. Available at: <http://www.webmd.com/food-recipes/news/20080916/food-allergy-labels-too-vague>.
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## UPDATES

### COOL UPDATE

The Country of Origin Labeling (COOL) ruling, under hot debate for many years, is finally in effect, as of March 16, 2009. This rule covers muscle cuts and ground beef, lamb, chicken, goat and pork; wild and farm-raised fish and shellfish; perishable agricultural commodities (specifically fresh and frozen fruits and vegetables); macadamia nuts; pecans; ginseng and peanuts. Having origin information on these products will add another layer to consumer package-reading skills and may be a factor that influences purchasing decisions.

It will probably not come as a surprise to consumers to discover that popular fresh and dried tropical fruits, like pineapple, coconut, mango and papaya are imported from Thailand and the Philippines. Turkey has become well known for dried apricots and hazelnuts and Australia for macadamia nuts. However, consumers may find some unexpected countries of origins in the frozen food section. Yes, Brussels sprouts often come from Belgium and French green beans from France, but you may also find frozen spinach and edamame imported from China, cauliflower and okra from Guatemala, corn and beans from Canada, and broccoli from Mexico. It could be more difficult, or impossible, to determine where your bag of frozen mixed vegetables originated. Any mixed food (like bagged salad with shredded carrots) and all processed foods (even as simple as roasted peanuts) are completely exempt from COOL. Even more confounding is that foods grown on U.S. soil but packaged and prepared in another country can still claim the U.S. as its country of origin.

While COOL is a step in the right direction, it is still a long haul until a food’s entire chain of production is included on the label. For more information, visit the USDA website at <http://www.ams.usda.gov/COOL>.

*Source:*

- News Release. January 12, 2009. “USDA Issues Final Rule on Mandatory Country of Origin Labeling,” <http://www.usda.gov>. “COOL Rules? New Labeling of Food Imports is Complicated, Confusing,” *Environmental Nutrition*, Dec. 2008, p. 3.

## IN THE NEWS

### PEANUT BUTTER: FRIEND OR FOE?

By

Adesuwa Elaiho, CSU Food Science Student

**P**eanut butter has been an American staple since the late 1800s, but this popular comfort food is now the unlikely main character in a foodborne illness outbreak and unprecedented product recall. Peanut butter and peanut butter paste contaminated with *Salmonella* Typhimurium have been the source of almost 700 illnesses and the cause of a record-breaking recall of more than 3,800 products. In 2007, Peter Pan peanut butter was implicated in an outbreak of *Salmonella* Tennessee that infected 425 people, 71 requiring hospitalization. These outbreaks have caused consumers to question whether peanut butter is truly our friend or an unexpected foe.

*Salmonella* is a rod-shaped enterobacteria and its discovery also dates back to the late 1800s. This pathogen has been associated with fresh poultry, meats, eggs, shrimp, and tomatoes and responsible for numerous outbreaks of foodborne illness. Common symptoms include diarrhea, fever, and abdominal cramps. Onset of the illness usually occurs within 12 to 72 hours following consumption and most people recover within 4 to 7 days without treatment. In severe cases, hospitalization may be required to maintain hydration. Infants, the elderly and immune compromised individuals are more likely to experience severe illness. The first documented outbreak of salmonellosis associated with peanut butter occurred in 1996 and was attributed to *Salmonella* Mbandaka.

The peanut plant is unusual in that it flowers above the soil but fruits below the surface. Runner and Spanish peanuts are the types generally used in making peanut butter. After reaching peak ripeness, peanuts are harvested, shelled, roasted, cooled, blanched, and sorted. During the grinding stages, the peanuts are heated up to about 170°C and then emulsifiers are often added to help maintain consistency and prevent separation. Peanut butter paste is 100% ground



peanuts and is supplied to food processors for use in products such as crackers, cereal, and candy bars.

Peanut butter is a colloidal suspension of lipid and water and has traditionally been considered low-risk when compared to many other foods. This lunchbox favorite does not usually require refrigeration and has a fairly long shelf life. This is due in part to the low water activity of peanut butter, reported to be 0.7 or below, which indicates there is a limited amount of water available to support the growth of microorganisms. A water activity of 0.70 means the vapor pressure is 70% of pure water. Most foods have a water activity above 0.95.



Ironically, some studies have shown that *Salmonella* may exhibit more heat resistance in foods with low water activity and high fat, such as peanut butter and chocolate. Experiments with highly contaminated peanut butter samples indicate that normal heat treatments may not be adequate to destroy *Salmonella*. If contaminated after processing, studies have shown that *Salmonella* can survive in peanut butter for at least 24 weeks and possibly the duration of the expected shelf life.

To help consumers determine if they have purchased recalled peanut products, the U.S. Food and Drug Administration (FDA) has created a searchable database and is advising consumers to check it often. The data base is available at: <http://www.accessdata.fda.gov/scripts/peanutbutterrecall/index.cfm>.

Consumers who do not have internet access can get information by calling FDA's Information line at 1-888-SAFEFOOD or the Center for Disease Control and Prevention (CDC) at 1-800-CDC-INFO.

#### Sources:

American Peanut Council, available at:

<http://www.peanutsusa.com/USA/Index.cfm>

Burnett, S, Gehm, E, Weissinger, W, Beuchat, L. 2000. Survival of *Salmonella* in peanut butter and peanut butter spread. *Journal of Applied Microbiology*, 89 (3): 472-477.

CDC Investigation Update: Outbreak of *Salmonella* Typhimurium Infections, 2008-2009. Centers for Disease Control and Prevention. Available at:

<http://www.cdc.gov/salmonella/typhimurium/update.html>

FDA, Peanut Product Recalls: *Salmonella* Typhimurium, FDA Reminds Consumers: Don't Eat Recalled Peanut Products, Available at:

<http://www.fda.gov/oc/opacom/hottopics/salmonellatyp.html>

Shachar, D. and Yaron, S. Heat Tolerance of *Salmonella enterica* Serovars Agona, Enteritidis and Typhimurium in Peanut Butter. *Journal of Food Protection*, 69 (11): 2687-2691.

## FEWER CRACKED EGGS ON THE WAY?

Thanks to USDA Agriculture Research Service (ARS) researchers, a new technology has been developed using slight vacuum pressure and special lights to spot microcracks in eggshells prior to packaging.



According to ARS, the new method has an accuracy rating of 99.4%, as compared to current practice of professional human checkers (94.2%). As one ARS staffer stated, "this could provide a tool that egg graders can use to consistently identify cracked eggs and improve the quality of the eggs that reach the consumer." To read the news release, "A Better Way to Spot Eggshell Cracks," visit the ARS' Web site at:

<http://www.ars.usda.gov/is/AR/archive/feb09/eggshell0209.htm>.

## ERYTHRITOL-SWEET JUST GOT BETTER

Label readers may have noticed lately the addition of a new sweetener on product ingredient lists. Although Erythritol was deemed safe by the FDA more than a decade ago, only recently is it gaining attention in products like chewing gum, candy, ice cream, baked goods and fruit spreads, as well as in some oral care and cold products.

A polyol, Erythritol is less likely to cause diarrhea than other sugar alcohols like sorbitol since it is digested primarily in the large rather than small intestine. It is 70% as sweet as table sugar, but it provides zero calories and is found naturally in some fruits like pears, melons and grapes. Costly to produce, price is a major drawback and thus why it is often used in combination with other sweeteners.

Erythritol can be used for baking and is available as a tabletop sweetener under the names *Sweet Simplicity* and *Smart Sweet* (both 100% erythritol), *Sun Crystals* (80% erythritol, 20% sugar), and *truvia* (erythritol and stevia, another newly approved sweetener).

Source:

"Erythritol sweeteners stand out from the pack, with benefits to boot," *Environmental Nutrition*, Jan. 2009, p.7.

## SURVEY ANYONE?

The National Agricultural Library's Food Safety Information Research Office (FSIRO) is seeking input to improve their website. The mission of FSRIO is supporting the research community by collecting, organizing and disseminating food safety research information. To participate, go to <http://fsrio.nal.usda.gov/> and click on survey.

## QUESTIONS YOU ASKED

### FOOD SAFETY AND THE GARDEN

#### Is it safe to water gardens with non-potable water?

Vegetable crops can be watered with non-potable water, but you need to carefully wash them with tap or boiled water before eating raw. To be even safer, it is suggested that you not water leafy vegetables like lettuce with the non-potable water within 2 weeks of harvest, because these can be hard to clean well. For root vegetables, these too will need to be carefully washed with potable water before eating raw. Cooking will also take care of any issues with *Giardia* or *Cryptosporidium*, and may be your safest bet overall.

Source: CSU Fact Sheet 9.369, Preventing *E. coli* from Garden to Plate

#### We have a family of foxes and a stray cat living in our community garden area. Should we be concerned?

You are right to be concerned, domestic or wild animals can be a source of contamination in the garden and this is especially a problem with produce, like tomatoes, that are often consumed raw. Where we see a garden patch, pets may see a litter box. So, limit access of animals - pets, livestock and wildlife - to the garden, especially during the growing season. This may be difficult to do if your community garden is not fenced so make all garden users aware of the situation and remind them that all produce needs to be thoroughly washed before being served. The CSU Extension Fact Sheet 9.360, Preventing *E. coli* From Garden to Plate, <http://www.ext.colostate.edu/pubs/foodnut/09369.html> has more information about food safety and the garden.

# RESOURCES

## GLUTEN-FREE INFO

Those needing to follow a gluten-free diet are always on the lookout for new resources and information. The University of Nebraska-Lincoln Extension has recently posted an article on celiac disease, resources and several sorghum recipes, which can be used in place of wheat quite successfully. Whole grain sorghum flour provides important fiber and has a sweet flavor that combines well with the delicate flavors of other food ingredients. View the article at: <http://lancaster.unl.edu/food/gluten-free-sorghum-recipes.shtml>.

A new Colorado State University Extension Fact Sheet, no. 9.375, Gluten-Free Diet Guide for People with Newly Diagnosed Celiac Disease, is available at <http://www.ext.colostate.edu/pubs/foodnut/09375.html>.

Stay tuned, as another CSU Fact Sheet for gluten-free baking is on its way!

# COMING EVENTS

## SAVE THE DATES!

**Rocky Mountain Food Safety Conference** will be held a second year at the Wildlife Experience in Parker, Colo., on Tuesday and Wednesday, May 5 and 6, 2009. An exciting lineup of speakers will present on a variety of topics: *Day 1* – local implications of a global food supply, USDA surveillance of imported foods, homeland security featuring Austin the wonder dog, effective food safety training; *Day 2* – a series on “Responding to an Outbreak,” creating a culture of food safety, as well as food industry challenges of “going green.” The cost for both days is \$175. For more information or to register, go to [www.rmfoodsafety.org](http://www.rmfoodsafety.org). Additionally, a Food Protection Manager Certification 4-hour review course will be hosted at this year's conference. Participants will receive study materials ahead of time in preparation for the ServSafe examination that will be given as part of the course. The class will be held on May 6 from 1-5 p.m., and will be taught by an

instructor from Colorado Food Safety consultants. Contact Sandra Perryman, 720-837-3204, for more information or to reserve a space.

**31<sup>st</sup> Annual Lillian Fountain Smith Conference for Nutrition Educators**, “Navigating the Fish Paradox: Human Health, Safety and Sustainability,” will be held this year on Saturday, October 17, 2009, in conjunction with the American Dietetic Association Meeting at the Downtown Denver Hilton Garden Inn. Details will be posted at the following website as it becomes available: <http://www.fshn.caahs.colostate.edu/LFSC/index.asp>

## SERVSAFE® TRAININGS

### Northern Region

<i>Date</i>	<i>Location</i>	<i>Intended Audience</i>	<i>Fee</i>
5/5/09 8-530p	Brush, CO	Mgrs Certification Training (<30 days prior)	\$95 \$120
6/9/09 130-6p	Brush, CO	Food Handler Training (<2 weeks prior)	\$25 \$40

Contact: Joy Akey (970) 332-4151

### Western Region

<i>Date</i>	<i>Location</i>	<i>Intended Audience</i>	<i>Fee</i>
5/20/09 8-530p	Eagle County	Mgrs Certification Training	\$105 - \$115

Contact: Glenda Wentworth (970) 328-8632

## ADDITIONAL FOOD HANDLER TRAININGS

**Larimer County Food Safety Works Program – Food Handler Training** **Fee: \$25**

Contact Edie McSherry, (970) 498-6008, Larimer County Extension office, for dates and locations of English and Spanish food handler trainings.

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