



On-Farm Food Safety: Questions Growers Frequently Ask

Lynn Nakamura-Tengan,¹ Jim Hollyer,² Luisa Castro,³ and Vanessa Troegner²

¹Department of Human Nutrition, Food and Animal Sciences, ²Agricultural Development in the American Pacific,

³Department of Natural Resources and Environmental Management

Q1. Why all the attention to food safety these days?

In the past few years, recorded outbreaks* of foodborne illnesses have increased. People have died or gotten gravely ill, and extensive food recalls were necessary. According to the Center for Science in the Public Interest, outbreaks caused by contaminated produce doubled between 1998 (44 outbreaks), and 2004 (85 outbreaks). Between 1990 and 2004, a total of 639 outbreaks due to produce occurred http://www.cspinet.org/foodsafety/produce_data.pdf. A few produce-related outbreaks have occurred in Hawai'i in recent years. (*An outbreak is when more than two people get sick.)

According to the U.S. Food and Drug Administration, "About 50 years ago, there were only 5 known organisms that caused foodborne illness. Today, there are at least 25 known foodborne pathogens—including 20 newly-discovered ones." Newly discovered pathogens could represent evolution of a genuinely new pathogen, such as the strain of *Escherichia coli* called O157:H7, or other pathogens recently recognized as causing foodborne illness that probably existed for centuries. The Centers for Disease Control and Prevention's 2008 nationwide statistics estimated 87 million cases of food-related illnesses, 371,000 hospitalizations, and 5,700 deaths. The leading pathogens in the food supply are campylobacter, cryptosporidium, listeria, shiga toxin-producing *E. coli* O157:H7, salmonella, shigella, vibrio, and yersinia (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5813a2.htm>).

Q2. What does this mean for farmers?

Buyers and consumers want to know that the foods they buy are safe to eat and that farmers are taking reasonable steps to produce safe food. *Good agricultural practices* (GAPs) developed by the produce industry, the FDA, and the USDA are voluntary guidelines on practices that

can help minimize the risk of microbial contamination of produce. However, current trends show that certain buyers seek suppliers that have third-party food safety certification; Costco, Safeway, and the U.S. Department of Defense are a few local examples. Other buyers are asking growers to provide a letter of guarantee or business liability and/or proof of product liability insurance. Professional growers and food marketers will maximize market opportunities and minimize liability risks by adopting GAPs.

Q3. I grew up on a farm and we never had to do this before. What's different now?

Yes, it's true, commercial growers must now be more careful than their predecessors, and this is the case with many professions. Many things have changed over time, as lifestyles, technology, and our knowledge have evolved.

- Today we have pathogens that didn't exist before or were not formerly identified as food-borne pathogens.
- The food system has changed significantly. More people are handling food before it is eaten, as consumers eat out more, buy take-out meals, and choose ready-to-eat foods like bagged salad greens. The more people that handle food, the greater the potential for problems. As a grower, you are responsible for your part of the chain: from the field to the next handler in the marketing chain or, in some cases, to the consumer.
- Certain populations are at greater risk of getting sick from contaminated foods because their body's immune system is not fully developed or weakened. This includes young children, older adults, pregnant women, and people with immune systems weakened due to chronic disease.
- Health advocates have successfully promoted eating

more fruits and vegetables, which is increasing everyone's possible exposure to pathogens on produce.

- Fewer people are raised on a farm, so most people are unaware of the actual growing environment. Consumers have come to expect year-round, uniform standards in the quality and safety of the produce they buy, and they may drop their guard in terms of safe food handling and preparation.
- Stricter environmental and worker safety regulations demand that farmers document efforts to care for the land and employees.

Q4. How is the UH College of Tropical Agriculture and Human Resources helping farmers?

Since 1999, CTAHR has been working on behalf of farmers and consumers (residents and visitors alike) to make sure that we are doing what we can to produce the safest food in the world. We are ahead of the nation in many respects. This goal benefits both farmers and consumers and protects the reputation of Hawai'i's agriculture as a whole.

With funding through external grants, CTAHR faculty offer individual coaching, informational tools, and basic supplies to help farmers meet the requirements of farm audits for food safety certification. As new questions and issues arise from individual farms, we actively seek clarification on regulations and interpretations of guidelines, and we advocate for science-based solutions for farmers. The goal is to enable growers to pass third-party certification using best practices based on the best science of the day and current industry guidelines.

Q5. How long does it take to prepare a farm for an audit?

An initial coaching meeting is about 1–1½ hours. From there, the timing is up to the grower's initiative.

Depending on the extent of changes needed and the grower's motivation, a farm can be ready for an audit in as few as 10 days. Others may take months, due to the condition of the facilities or, sometimes, the grower's procrastination. Common actions required are cleaning up, organizing the company food-safety manual, and making needed upgrades.

Before the audit with the Hawai'i Department of

Agriculture*, you will need to go through a mock audit. CTAHR coaches are available to assist you with the mock audit. (*You can choose to go through another audit company, but it may cost more, and the initial audit fee will not be covered through the CTAHR Farm Food Safety Program.)

Keep in mind that you need only an 80% score, not 100%, to pass the audit. CTAHR coaches encourage you to produce the safest food; therefore, most growers who have gone through coaching with us have passed with scores of 90% and above. Our best audit score to date was by a non-English speaking grower who was totally committed to maintaining his market by obtaining certification.

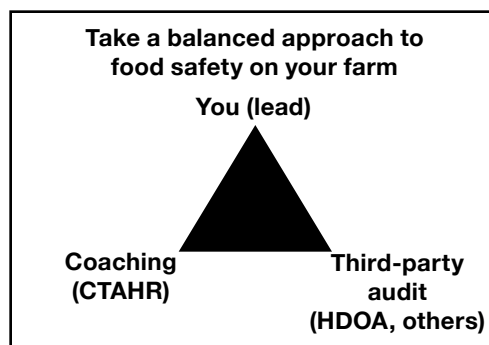
Q6. What is the average cost of the annual audit?

During 2008–09, the average cost for an audit on O'ahu was \$250, using an O'ahu auditor. The price varies depending on the amount of time the auditor spends on the farm and the distance that the auditor must travel. The HDOA audit costs \$31.50 an hour (for both on-farm hours and in-office hours inputting audit data), plus mileage (currently at the federal rate of \$0.55/mile). If inter-island travel was required, the average cost was \$410, depending on airfare prices. Therefore, having an organized food-safety manual and supporting documents readily accessible during the audit can save money by saving time.

If a farmer chooses to schedule an audit directly with a private audit company, costs will be higher (\$800–\$1000) depending on the size of the operation. The resulting audit report would include the audit company banner instead of the HDOA logo. For example, you could contact Primus Labs, and once you pass the audit, you can pay a monthly fee to use the Primus Labs food-safety certification seal on your packaging. Farms having passed an audit can register with the Hawaii Food Safety Center, <http://www.hawaiifoodsafetycenter.org>.

Q7. What has been the average cost of upgrades to prepare for a first-time audit?

Costs for upgrades have varied from a few dollars to several hundred dollars, depending on the farm practices existing before coaching. For example, if a farm is



using contaminated water with high *E. coli* counts for washing produce, they will need to invest in technology to clean up that water to make it safe, or find another, uncontaminated source. For most people, what takes time is cleaning up and disposing of “stuff” that has accumulated in the fields and packing sheds. For some farms, upgrades in toilet and hand-washing facilities for workers are required. At this time, we have up to \$1000 to cover the cost of the initial audit, with the balance available to reimburse the grower’s expenses for food safety upgrades. Like most great deals, it’s for a limited time, while funds are available!

Q8. What about all these expensive upgrades I heard about: dust barriers, an enclosed packing shed with concrete floors, and all new boxes with labels?

These are mostly myths! There is no requirement for dust barriers similar those needed for construction sites. Packing sheds do not need to be enclosed or have concrete floors. They *do* need to be separated from other non-packing activities, like vehicle maintenance work. New boxes are not required but are suggested, as they project a more professional image. Used boxes should be cleaned and lined with paper or plastic before use. New box labels aren’t required if your current label includes the commodity name, weight, your farm name and address, country of origin information (e.g., “Grown in Kula, Hawaii, USA”) and a traceback code (usually added at the time of harvest to indicate the date and field of harvest).

Q9. Do farms need to be inspected by the Hawai‘i Department of Health?

No. If the farm is selling raw agricultural commodities, as opposed to prepared “food” products, it does not fall under DOH oversight. For example, if you are selling your produce whole, only removing damaged or dirty outer leaves from a head of lettuce, cabbage, or similar crop, this is considered harvest trimming of a raw agricultural commodity, and you do not need to be inspected by DOH.

However, if you are removing the leaves from the main stem, rinsing, and bagging loose leaves, this can be considered minimum processing. Minimum-processed products, whether raw (requiring rinsing before eating) or “ready-to-eat,” may fall under DOH Administrative Rules Chapter 11-12. Also, if you plan to grow sprouts or make something out of your raw agricultural product (e.g., preserves, packaged mix, etc.), contact your local

DOH Food and Drug office for guidelines and regulations that may apply to your facility.

Q10. I have agricultural water at the farm. Do I need to put in a treatment system?

No, provided that (1) the water meets water standards* based on direct contact with edible parts of the produce (e.g., through overhead irrigation or a pesticide application), or (2) the water is NOT in contact with the edible part of the produce (e.g., use of drip irrigation). (*Standard based on California Leafy Greens Alliance)

All farms, regardless of water source (municipal, catchment, “ag” water) will need records of annual water tests (testing twice a year is preferred). Water tests for generic *E. coli* should average ≤ 126 MPN per 100 ml or, for a single sample, ≤ 235 MPN per 110 ml (MPN = most probable number). There should be no *E. coli* O157:H7 or salmonella. If water tests exceed acceptable pathogen levels, remedial action must be taken based on your company’s written standard operating procedures for corrective action. This could include checking for the possible source of contamination, treating water, retesting, and/or temporarily using an alternate water source.

Potable water is required at all times for hand washing and rinsing produce at the farm.

Q11. I’m a certified organic grower, so why do I need food safety certification?

Organic certification is completely separate from food safety certification. Although organic production offers certain environmental benefits and attracts certain buyers, scientific studies have shown that harmful microbial contamination can occur on organic produce if there is exposure to animal manure, contact with certain pests, or problems with poor worker hygiene. These sources of contamination are found in both organic and conventional farm production.

Some certified organic farms in Hawai‘i have been food safety certified. One area of focus in GAPs is having current records for fertilizer and chemical applications. Fortunately, this is where the organic farms typically have a leg up on conventional farms—they have been keeping both sets of records for years.



As with conventional farms, products used in organic operations need to be approved for the specific crop, as written on the product label. Products such as dish soaps that are recommended for home gardeners are not acceptable for food-safety certification of commercial operations because these products are not specifically labeled for that use on food crops. Another issue has been animals. Ducks or cats for pest control in the food production and processing areas are not allowed because animals can shed human-infecting pathogens, and that increases the risk of microbial contamination on the farm. Fortunately, as with the issues facing conventional agriculture operations, these can be resolved.

Finally, the cost of a food safety audit is considerably less than an audit for organic standards.

Q12. What are the common food safety-related problems you are finding on Hawai'i farms?

- There is no toilet within ¼ mile of where an employee is working that includes hand-washing facilities with potable water (this is an OSHA regulation).
- Employees are not trained or expected to wash hands regularly, especially after using the bathroom.
- Animals (wild or domestic) are not excluded from production areas and packing sheds.
- Animal manures are not being managed safely based on EPA guidelines.
- Non-potable water is used to rinse harvested produce (it's against HDOH Administrative Rules 11-11-8).
- Records on chemicals and fertilizers applied to the crop are lacking.



ALL of these shortcomings have been fixed with relatively little expense and effort by growers in our program. Most growers have said to us that these things are just “common sense.”

Q13. I am a small-scale farmer; why should I have to do this?

Most farms in Hawai'i are considered “small” compared to the average U.S. mainland farm. Unfortunately, harmful

pathogens do not exist only on large farms. Every commercial farm, regardless of size, supplies food for public consumption. GAPs are intended to minimize risk, not eliminate it entirely (which is not possible). As a professional food producer, adopting GAPs will minimize your potential risks from microbial pathogens. This is especially important for Hawai'i growers, where Hawai'i Regional Cuisine highlights the use of local foods. Growers need to take personal pride and responsibility in providing high-quality, safe produce, because one incident can have devastating effects on our entire Hawai'i food system. The 2006 California spinach recall took a massive toll on the entire spinach industry, not just the company involved.

One benefit of a small operation is that you probably will not be applying chemicals or fertilizers daily, so your recordkeeping is simpler compared to larger farms.

Just like in the automobile industry, small manufactures are held to the same safety standards as large ones, and that is good news for all drivers.

Q14. I have insurance on my farm, so I'm not worried . . . right?

Wrong. If you have only a general liability policy on your farm, your for-sale food is not covered, and this exposes all your personal assets should you get into a lawsuit. If you have a product liability policy, your food is covered, *if* you can prove that you were not negligent, i.e., that you were actively using best practices like GAPs. An insurance policy is not a shield for negligence. The documentation part of our coaching becomes supporting evidence to show that you are doing the best you can. Clearly, the best policy is adopting GAPs and getting an annual third-party audit. (For more information on legal liability, see <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/FST-32.pdf>.)

Q15. Do I have to do this, if it's “voluntary”?

No, you don't have to use recommended practices or get audited. It's your choice when to adopt GAPs. If you do this and it becomes mandatory on a federal or state level, however, you will be ahead of the game. If you prefer taking it in steps, you can start adopting GAPs and elect to go through third-party certification later . . . or not.

When you are ready, CTAHR coaches are ready to help you. For more information call 956-9539 (O'ahu, Kaua'i), 244-3242, ext. 233 (Maui), and 981-5199 (Hawai'i).

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Disclaimer: Mention of a company name does not imply recommendation of the company over others that may also be suitable.