

PRODUCE FOOD SAFETY
PRODUCED BY:
HAPPY PEOPLE ENTERPRISES, LLC

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Introduction to Produce Food Safety

There is no doubt that food safety regulations are confusing and complicated, and more so to those who don't work with them every day. To further complicate things, the regulations get more intricate depending on the food item, the food's form (whether it's raw or processed, whole or cut) and where the food is located in the farm to table pathway. For simplifying this discussion, we will collectively refer to the multiple food items and forms possible as a 'food type' and get into the details later in the handbook.

The Food Safety portion of the handbook is written to assist small to medium sized produce growers understand food safety regulations in the farm to table pathway to allow them to compete in various marketplaces. By understanding which food safety regulations pertain to which food types, producers will be able to demonstrate compliance to buyers. Not every retail or wholesale distribution buyer may ask for a Food Safety Plan, but as a grower, knowing what may be expected of you helps you be prepared. That can be the difference between making a sale and not.

Figure 1 gives an overview of the various food types by marketplace. For each one of these food types, there are food safety guidelines or regulations designed to protect the quality of the food. We will explain the food type and marketplace relationship further and then discuss in depth the guidelines and regulations corresponding to them.



Remember:

When it comes to food safety regulations and getting food to the table, there is no straight forward answer to how it all works (a spider web is a more accurate picture). When in doubt, call your local Health Department for clarification.

As a producer, it might help you to think of the ‘food type’ you are offering, and then from that ‘food type’, think in terms of food safety requirements one step backwards and one step forwards. Ask yourself “What is the food safety regulation in effect for the ‘food type’ where it came from? Did it just come off the farm, in its raw, whole, uncut form or did it come from a wholesale distributor? Where is the ‘food type’ GOING on its way to the table? Is it going directly to the consumer through a farmer’s market, community supported agriculture program, or roadside stand? Is it in a value added processed form, going to a school, hospital or nursing home? There are different food safety regulations for each.

If you are a producer working with a food distributor, you should expect them to ask for a copy of your food safety plan for their records. The wholesale or institutional buyer, regardless of whether it comes directly from the farm or from a 3rd party distributor, may require foods received to demonstrate it meets the ‘approved source’ definition of their licensing regulations.

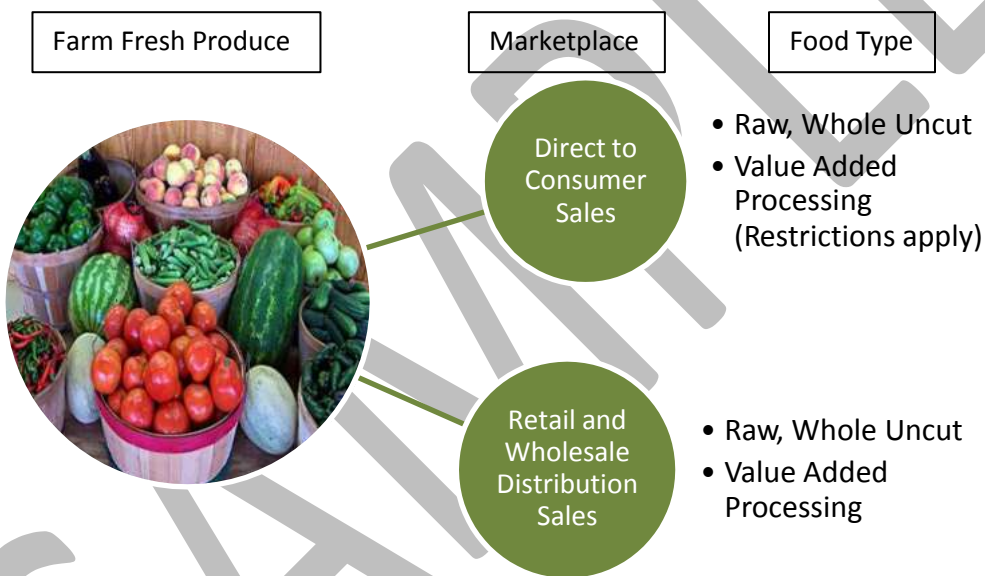


Figure 1 Overview of food types and marketplace location.

Let’s start pulling this spider web of regulations and food products apart. There are two primary questions a health inspector will ask you when you talk to them about the requirements for selling food: “Who are you selling it to?” and “What is the type of food you are selling?” The ‘who’ is easier than the ‘what’, so this handbook will begin there.

Marketplaces

How food gets from the farm to the table is a complex process, and there are food safety guidelines or regulations at every step. Multiple steps are often combined at one physical facility, others take place at separate facilities, and then some are skipped altogether. Figure 2 is an overview of the steps in farm to table pathway:



Figure 2 Steps in the Farm to Table Pathway

The *location* of the food in the pathway is one of the most important considerations when it comes to the food safety regulations for human consumption. That’s because there are different regulations for the different steps and for the intended sales point – or marketplace. The two marketplace entry points are Direct to Consumer and Retail and Wholesale Distribution. This handbook will use these two terms because they are consistently used throughout all levels of the food regulatory authorities to collectively describe the various markets within each entry point. Using the commonly established terminology provides continuity all the way through the food safety discussion and provides less opportunity for confusion down the road. Figure 3 and Figure 4 summarizes the two marketplace entry points.

Direct to Consumer Sales (No Reselling)

This is generally thought of as locally grown or produced foods being sold to local food consumers through outlets such as farmer’s markets, roadside stands, on-farm sales and through Community Supported Agriculture (CSA) sales models. Although ‘local’ implies a geographical or regional relationship between food production and consumption, there is no definition on the distance food products travel to be considered local. The 2008 Food, Conservation, and Energy Act which the U.S. Congress adopted, defined the total distance traveled for a “locally or regionally produced agricultural food product “to still be

Direct to Consumer Sales

Definition: Foods intended for the 'end consumer' for direct consumption.

Key Idea: No Reselling

- Farmers Markets
- On-Farm
- Roadside Stands
- Community Supported Agriculture (CSA)

Figure 3 Direct to Consumer Summary

considered local is less than 400 miles from its origin, or within the State in which it was produced.”¹

The key idea in the Direct to Consumer marketplace is that there is **no reselling** of food items; the buyer is the ‘end user’. Delivery is allowed, as often is the case in CSA’s. Food shares are preordered, and delivery is at a common pick up point. It is the responsibility of the CSA to maintain food quality and safety (through time and temperature requirements) until the consumer takes possession of the products.

Retail and Wholesale Distribution Sales (Reselling)

This marketplace description encompasses basically all the rest of the locations where you could consume food products. It includes not only fresh produce but also all value-added processed, potentially hazardous and non-potentially hazardous foods (the next section will explain the details of this, so don’t worry!). There are no geographic boundaries implied with the purchase and consumption of these foods as with the Direct to Consumer marketplace.

Retail and Wholesale Distribution outlets include such places as grocery stores, corner stores, restaurants, and institutional settings such as schools, universities, church kitchens, food banks and other food assistance programs where they *sell or give* food to consumers for consumption on-site or off-site. This category also includes hospitals nursing homes, assisted living facilities, and rehabilitative care, etc., where food is prepared for residents and guests.

These businesses may be for profit or a non-profit, but they are providing a service – the service is a meal, that might have to be cooked or not before eating, or the food ingredients that make up a meal. In addition, there may or may not be a charge for meals.

However, in all cases this brings us to the key idea of Retail and Wholesale Distribution – **reselling**. Think of it this way: Is the business or non-profit providing food to others for consumption or is it for their own personal consumption? If they are intending it for others, they fall under the reselling marketplace.

Retail & Wholesale Distribution Sales

Definition: Foods intended for on or off premises consumption, where a fee may or may not be charged.

Key Idea: Reselling

- Institution (School, University, Hospital, Nursing Home, etc.)
- Grocery Store
- Corner Store
- Restaurant
- Food Bank and other Food Assistance Programs

Figure 4 Retail & Wholesale Distribution Summary

[Farm to Table Pathway Regulatory Chart omitted from sample document.]

¹ Martinez, Steve. Local Food Systems: Concepts, Impacts, and Issues. U.S. Department of Agriculture. 2013-02-06. URL:http://www.ers.usda.gov/media/122864/err97_reportsummary_1_.pdf. Accessed: 2012-10-16. (Archived by WebCite® at <http://www.webcitation.org/6EEz5SMd>)

Farm to Table Pathway by Food Type

So, we've answered the question, "Who are you selling it to?" Now it's time to answer the "What type of food are you selling?" question. This is where the spider web really gets complex. However, we are going to break it down into sections, focusing on the 'food type' and the food safety regulations applicable to that food type. I say 'food type' because we're not only going to discuss produce, but produce-related, value added processed foods.

Since the spider web of food products is only limited by one's imagination, this discussion will stick to food safety regulations pertaining to two basic categories: raw, whole, uncut produce and value added processed foods. However, within the value added processing category there are three subcategories: potentially hazardous, non-potentially hazardous, and both.

The Farm to Table Pathway Regulatory Chart on the previous page is a snapshot overview of the regulatory requirements for these food types, and will be the basis for discussion of this section of the handbook. We will be following the 'food type' along its path to the table, and address the regulatory oversight in place for each.

Food Type: Raw, Whole, Uncut Produce

This food type is fruits and vegetables straight out of the ground, or off the farm. Minimal processing of produce happens at this step: field dirt washed off, sorted and packed for transport to the next step on the way to the table.

You will typically see this food type at farmer's markets, roadside stands, in community supported agriculture (CSA) shares, and grocery store produce sections. In this form, produce seems to be the least compromised, food safety wise. But let's take a closer look.

Produce Safety Background

The Center for Science in the Public Interest (CSPINET) researched foodborne outbreaks and illnesses between 1990 and 2005 that had an identified food source, and found that produce is not as risk-free as we might like to think. From their Produce Outbreak Poster Presentation² at the 2007 International Association for Food Protection Annual Meeting, here are some figures regarding foods source outbreaks and illnesses:

Between the years 1990 - 2005:

- 13% of all identified food source outbreaks were linked to produce, and;
- 21% of outbreak illnesses were linked to produce.
- Of those food source outbreaks:
 - 50% were traced back to restaurants, and other food establishments;
 - 13% were traced back to private homes;
 - Other outbreak locations identified were workplaces, catered events and schools;

² Dewall, C. S.; Bhuiya, F.. Outbreaks by the Numbers: Fruits and Vegetables 1990-2005. Center for Science in the Public Interest. 2013-02-06. URL:[http://cspinet.org/foodsafety/Produce%20Outbreaks%20\(IAFP%20Poster%2007\).pdf](http://cspinet.org/foodsafety/Produce%20Outbreaks%20(IAFP%20Poster%2007).pdf) . Accessed: 2012-10-16. [Archived by WebCite® at <http://www.webcitation.org/6EEf1BCcQ>]

- During this same timeframe, produce outbreaks had been linked to an average of 48% illnesses per outbreak. CSPINET also noted that on average, produce outbreaks had caused more illnesses than beef, poultry and seafood outbreaks.
- The main pathogenic agents associated with the illnesses were:
 - 40% - Norovirus – a very contagious virus, causing acute stomach and intestinal distress.³
 - 18% - Salmonella – a bacterium causing diarrhea, fever and abdominal cramps.⁴
 - 8% - E. coli – a large and diverse bacterial group, commonly causing severe stomach cramps, diarrhea and vomiting.⁵

From their Produce Outbreak Poster Presentation, CSPINET concluded that:

“The produce industry needs to implement a Hazards and Critical Control Points (HACCP) based program to reduce the risk of microbial contamination, using the Seafood HACCP program as a model. Mandatory seafood HACCP utilized a preventative control program for seafood processors in an industry with many small companies. The Food and Drug Administration (FDA) should establish a regulatory requirement that all produce growers and processors develop a food safety plan and FDA should set requirements for what should be in the plan. Finally, the agency should publish a “Hazards and Controls Guide” outlining hazards in different produce items using the outbreak data, and the best known controls to prevent or reduce the risk. This Guide can be updated as needed to reflect new science. “

A review of all documented food related foodborne illnesses and outbreaks since 1963 also supports this increase. While there were only seven documented cases from 1963-1985, the number of illnesses and outbreaks have increased at alarming rates since the 1990’s, with at least one outbreak/illness documented almost every year since 1992⁶.

Evolution of Federal Produce Food Safety Regulations

1938 The FDA Food Drug and Cosmetic Act (the Act) gives the U.S. Food and Drug Administration (FDA) the authority to oversee the safety of food, drugs, and cosmetics. As modern-day threats

³ Norovirus. Centers for Disease Control and Prevention. URL:<http://www.cdc.gov/norovirus/about/overview.html>. Accessed: 2012-10-16. (Archived by WebCite[®] at <http://www.webcitation.org/6EEgG9mav>)

⁴ Salmonella. Centers for Disease Control and Prevention. URL:<http://www.cdc.gov/salmonella/general/diagnosis.html>. Accessed: 2012-10-16. (Archived by WebCite[®] at <http://www.webcitation.org/6EEgQkNEF>)

⁵ E. coli. Centers for Disease Control and Prevention. URL:<http://www.cdc.gov/ecoli/general/index.html>. Accessed: 2012-10-16. (Archived by WebCite[®] at <http://www.webcitation.org/6EEgWq7C4>)

⁶ List of Foodborne Illness Outbreaks in the United States. Wikipedia. URL:http://en.wikipedia.org/wiki/List_of_foodborne_illness_outbreaks_in_the_United_States. Accessed: 2012-10-16. (Archived by WebCite[®] at <http://www.webcitation.org/6EEgguPtr>)

continue to emerge, the Act has been amended as necessary to protect foods. The [FDA Food Drug and Cosmetic Act](#)⁷ defines raw agricultural commodities in section 201(r) as:

(r) The term "raw agricultural commodity" means any food in its raw or natural state, including all fruits that are washed, colored, or otherwise treated in their unpeeled natural form prior to marketing.



Important Definition:
Other Federal and State of Colorado regulations reference this definition when exempting certain types of activities from their guidelines or regulations.

- 1998 The United States Department of Agriculture (USDA) and Food and Drug Administration (FDA) issued recommendations for good agricultural practices (GAP) and good handling practices (GHP) in the Food and Drug Administration's [Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables](#). (Oct 1998)⁸, *emphasis added*. "This guidance document("the guide") addresses microbial food safety hazards and good agricultural and management practices common to the growing, harvesting, washing, sorting, packing, and transporting of most fruits and vegetables sold to consumers in an unprocessed or minimally processed (raw) form." (pg 1)

In simple terms, this good agricultural practices (GAP) guide examines farm growing practices to identify the potential food contamination risk level grown on the farm. Based on known and documented on-farm best management practices, these guidelines are a tool produce growers can use to self-assess their specific farm growing practices. By determining the food safety effectiveness of their produce growing and harvesting practices, farmers can increase the safety of their crops in the marketplace.

- 2007 The FDA issued fresh-cut fruit and vegetable processing guidelines: [Guide to Minimize Microbial Food Safety Hazards of Fresh-Cut Fruits and Vegetables](#)⁹ (*emphasis added*). This guidance document is for food processors who are minimally processing fruits and vegetables into sliced tomatoes, salad mixes, shredded lettuce, cut celery stalks, peeled baby carrots, broccoli and cauliflower florets, cut melon, etc.

⁷ Food and Drug Administration, Federal Food Drug and Cosmetic Act
<http://www.fda.gov/RegulatoryInformation/Legislation/FederalFoodDrugandCosmeticActFDCA/default.htm>. Accessed: 2012-10-16. ([Archived by WebCite](#)[®] at <http://www.webcitation.org/6E17M83G5>)

⁸ US Food and Drug Administration
<http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlanProducts/ucm064574.htm>. Accessed: 2012-10-16. ([Archived by WebCite](#)[®] at <http://www.webcitation.org/6E1FNNe4p>)

⁹ US Department of Health and Human Services, Food and Drug Administration, Center for Food Safety and Applied Nutrition
<http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlanProducts/ucm064458.htm>. Accessed: 2012-10-16. ([Archived by WebCite](#)[®] at <http://www.webcitation.org/6E181zuOv>)

It is important to note two points about the USDA/FDA guideline documents:

1. Guidelines are recommendations to growers and food processors on how to improve the food safety of what they are growing or processing, and thereby minimize the risk of contaminating the food supply. Guidelines are not enforceable and there is no penalty for not following them.
2. In general, state of Colorado *regulations*, where adopted, will supersede Federal *guidelines*. In addition, local county regulations may also exist within the State of Colorado that might either supplement or supersede State regulations, depending on how they are written.

In the case of on-farm (aka raw, whole, uncut fruit and vegetable) food safety, there is currently no state of Colorado regulations. Therefore, the USDA/FDA GAP guidelines are the closest applicable regulations for growers to follow. While these guidelines are (currently) voluntary, they provide growers with valuable on-farm check-points to make sure they aren't unknowingly introducing foodborne pathogens into the food supply.

In the case of processing fresh fruits and vegetables (salad mixes, cut fruit, sliced tomatoes, etc), Colorado does have regulations governing this food type, known as the [Colorado Wholesale Food Regulations](#)¹⁰, Current Good Manufacturing Practice in Manufacturing, Packing or Holding Human Food. These Colorado *regulations* supersede the 2007 USDA/FDA *guidelines* for minimally processing fruits and vegetables, and are typically applied to larger food processors. In 2012, Colorado enacted the Colorado Cottage Food Act for home kitchen processing of limited food items, and in limited quantities. This handbook will discuss each of these regulations in the next section.

- 2011 The FDA enacted the Food Safety Modernization Act (FSMA), a law enacted to provide national food safety protections of the food supply. The FSMA is the largest, most complete overhaul of the food safety law since 1938. Through this law, the FDA will be releasing the science-based produce safety standards, commonly referred to as the Produce Safety Rule, and updated GAP guidelines. Produce Safety Rule exemption provisions are provided for small growers meeting specific threshold limits. At the time of this writing, neither of these documents has been released, and as a result no comments are provided.

Applicable Regulations

With all this discussion about food safety regulations, you may have gotten lost in how this applies to you. Basically, the 1998 GAP guidelines and food safety plans are voluntary and recommended to be developed, to protect food safety as it enters the food supply (remember guidelines are voluntary and regulations are requirements).

¹⁰ Colorado Department of Public Health & Environment <http://www.colorado.gov/cs/Satellite/CDPHE-DEHS/CBON/1251586894471>. Accessed: 2012-10-16. (Archived by WebCite® at <http://www.webcitation.org/6E18HLVo6>)

When the Food Modernization Act Produce Safety Rules is release, larger growers (over the \$500,000 threshold) will have to comply, and it is expected that smaller growers will be able to apply for exemptions. However, this may not always be the case. Small growers who adapt to new trends are more likely to not only survive but thrive in the changing marketplace. History records industry giants losing market dominance for this very reason (Swiss watchmakers not adapting to technology changes in the 1070's is one example¹¹.)

Regulating Authority

Because these are voluntary guidelines, this is a self-regulated segment of the food supply. If a grower chooses to voluntarily assess their on-farm good agricultural practices using the GAP guidelines, they are encouraged to do so. Growers are responsible for developing and maintaining documents and record keeping. The Resources section below will provide links to help growers get started.

If needed or desired, private third party audits are available to review the food safety plan that is already developed and implemented on a farm. It is a 'snapshot in time' review of a farms operation, and should be viewed as another set of eyes to evaluate farm operation's effectiveness, and needed improvements.

Food Location in Pathway

The voluntary USDA/FDA GAP guidelines apply equally to raw, whole, uncut produce sold to both marketplaces discussed above: Direct to Consumers and to Retail & Wholesale Consumer.

Additional Requirements

Because of the increase in produce foodborne illnesses and outbreaks, and related liability issues, a phenomenon is emerging where many produce buyers are requiring a grower provide documentation of a food safety plan before purchasing from them. An example of this is the Colorado Department of Education. By at 2006 federal mandate¹², any public school that participates in the Nations School Lunch Program or School Breakfast Program is required to have a School Food Safety Program. The Colorado Department of Education offers food safety resources to help school districts meet these expectations. A more detailed discussion can be found in the Additional County and Market-Driven Requirements section.

Financial Lenders and Food Safety Plans

With each media exposure of a produce related food outbreak, and the financial toll to the grower, the question of liability is raised, not only to the grower, but in a trickledown effect, to the financial lender as well. If a grower's crop is suspected or determined to be the source of a food borne outbreak, the financial ramifications can be significant.

¹¹ Young, A.. Markets in Time: The Rise, Fall, and Revival of Swiss Watchmaking. Foundation For Economic Education. URL:http://www.fee.org/the_freeman/detail/markets-in-time-the-rise-fall-and-revival-of-swiss-watchmaking/#axzz2K9NQgmMu. Accessed: 2012-10-16. (Archived by WebCite® at <http://www.webcitation.org/6EEjgmc4Z>)

¹² USDA Food Nutrition Services http://www.fns.usda.gov/cnd/governance/legislation/historical/pl_108-265.pdf. Accessed: 2012-10-16. (Archived by WebCite® at <http://www.webcitation.org/6E19FGs32>)