Guidance for Produce Traceability

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The Department of Agriculture and Markets would like to express its appreciation to the Produce Traceability Blue Ribbon Task Force members for their contributions to the development of this Guidance for Produce Traceability document.

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<th>Name</th>
<th>Organization</th>
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<td>Springwater Sprouts</td>
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<td>Steve or Angela Karr</td>
<td>Pride Pak</td>
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<tr>
<td>William Nies</td>
<td>Springwater Sprouts</td>
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FOREWORD

On November 12, 2020, New York State Commissioner of Agriculture Richard A. Ball convened a Produce Traceability Blue Ribbon Task Force (Task Force) comprised of growers, processors, packers, distributors, and retailers across multiple produce commodities, to share best practices and bolster the tracing of produce in New York State.

The Task Force was established to:

- gain a better understanding of the variety of approaches being used for traceability throughout the produce industry, and
- provide best management practices to help all businesses along the produce supply chain refine and improve how they currently trace produce.

The Task Force shared information with the Department of Agriculture and Markets (Department) regarding their produce traceability practices and protocols as well challenges they faced with traceability system development; the costs associated with implementation; variability in buyer requirements; and interconnectivity, or lack of, with other traceability systems in the produce supply chain. The Department used this information, as well as recommended best practices and published material on traceability,\(^1\) to create this voluntary best management practices document.

This document can be used as a guide for businesses hoping to expand their current traceability efforts, those interested in beginning the implementation of an internal traceability system, or those who handle products that are listed on the proposed Food and Drug Administration’s (FDA) Food Traceability List. This New York State Guidance for Produce Traceability provides a set of minimum best practices for traceability and identifies areas that are important to include when developing a traceability system, with each step bolstering the effectiveness of the traceability system. Some of the resources may be more helpful for those looking to enhance current traceability systems, whereas others may be more applicable for those beginning the implementation process. The goal of this document is to provide useful information for everyone regardless of business size. The Department acknowledges that the size of a farm or business may impact its ability to implement some of the practices outlined due to resource limitations and/or other business priorities, but the implementation of any of these traceability steps, no matter how minor, will bolster current traceability efforts within the produce industry in New York State.

Improving produce safety depends on all those who support the growth, sale, and distribution of fresh produce. This includes, but is not limited to, farmers, packers, distributors, processors, auctioneers, municipality personnel that sponsor farmers’ markets, not-for-profit personnel that distribute donated food, and retailers. All of these individuals should be trained in food safety so they can support the effective implementation of food safety practices from farm to fork.\(^2\)

It is also important to acknowledge that consumers also have a responsibility to implement food safety practices during shopping, transporting, storing, and preparing foods in their own homes. As we at the Department encourage the fresh produce industry to improve traceability practices, we are also encouraging consumers to do their part in keeping the produce they handle and prepare safe for

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1 Innovation Center for U.S. Dairy’s “Guidance for Dairy Product Enhanced Traceability”
2 GS1 Traceability for Fresh Fruits and Vegetables Implementation Guide Issue 2, May-2010
3 FAO of the United Nations Food Traceability Guidance Santiago, 2017
4 https://instituteforfoodsafety.cornell.edu/trainings/food-safety-training-opportunities/
While the information outlined in this document, as it relates to the tracing of produce in New York State, is intended as guidance, a rise in foodborne outbreaks associated with produce may result in all produce businesses needing to trace all the produce they grow, process, distribute, and/or sell in the future. As such, we encourage all produce businesses in New York to remain leaders in this area and unified in our mission of providing consumers with safe and wholesome fruits and vegetables.

We offer our sincere thanks for the effort put forth by all the members of the Task Force and their willingness to share their experiences, provide recommendations, and join us in this important effort to improve the traceability of produce throughout New York.

If you have specific questions about this document, please email the Department’s Press Office at pressoffice@agriculture.ny.gov
OVERVIEW

Produce traceability is a process that enables those within the produce supply chain to follow products forward and backward through the supply chain. Traceability of food products has become the focus of national and international legislation; research and technical development initiatives and projects; and many scientific articles. However, one of the challenges with produce traceability is that there is not consistent, industry accepted terminology to define and differentiate between the components of a traceability system. This can lead to misunderstanding in relation to what a traceability system is, what the components are, and how system functionality can be improved, and in the worst case can result in the establishment of an ineffective traceability system.

This guidance document aims to overcome those challenges by providing terminology definitions and using consistent verbiage to describe a voluntary set of systemic best practices, principles, and standards for implementing an effective traceability system that when used, will enhance how produce is traced from the farm to the consumer. This guidance document also includes assisting with sales and quality tracking, product recalls, and the tracing of food safety parameters such as customer complaints and foodborne illness outbreaks.

Task Force members acknowledged the importance of traceability in being able to quickly respond to issues related to both quality and safety. This is important for consumer confidence in the food supply and in maintaining the reputation of every business. Task Force members also shared that while a level of automation improves consistency and proper product identification, hand-writing this information is common and acceptable. Task Force members relayed that both electronic and handwritten records are pervasive in the produce supply chain. Additionally, Task Force members with the lowest level of automation described that they were able to create good traceability records and track their product through the produce supply chain.

What is a Produce Traceability System?
In this guidance document, a produce traceability system is used as a generic term encompassing the principles, practices, and standards needed to trace produce throughout the supply chain. In practice, most traceability systems are computerized and are implemented through the extensive use of information technology, but in principle a traceability system could be manual and paper-based, using the components outlined herein.

What are the critical components of a successful produce traceability system? The critical components of a successful produce traceability system are:

1. A process flow diagram that maps how produce moves through a business.
   o This diagram should include when and where new produce enters and exits, how lots are established, where lots converge, and/or if applicable, where products are transformed (i.e., carrots and cabbage enter a facility and are transformed into coleslaw).
2. A lot identifying code (Lot ID) that will be used in all the business’ records.
3. Records (manual or electronic) that will assist in expedient and effective recalls.

A multi-point checklist is provided at the end of this document as a guide that can be used to identify the critical steps that are needed to ensure you have a robust, internal and/or external produce traceability system.

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What is a lot identifying code (Lot ID)? A Lot ID is a unique number, letter, number-letter combination, or some other designation that identifies a group or lot of produce.

What is an electronic produce traceability system? An electronic produce traceability system may support a more complex traceability protocol and result in the more efficient tracing of product. While electronic traceability can be advantageous, no specific platform or operating system is recommended in this guidance. Many of the Task Force members who already use an electronic traceability system shared that they use modules in their electronic platforms for other purposes besides food safety recalls, such as inventory control, invoicing/billing, human resources, payroll, etc. A list of electronic produce traceability systems, and their costs, is provided at the end of this document for informational purposes only (Appendix 7). As a business begins to explore the need to implement an electronic traceability system, finding a solution that works well for one’s business, is cost effective, and connects with other suppliers along the produce supply chain is the key to ensuring that New York has the safest produce supply.

Note: This document is intended to be used in tandem with established food safety and quality assurance systems.

Why Create a Traceability System?

A traceability system promotes food safety, enhances quality control, and helps a business to meet the expectations of existing or future buyers, third-party audits, and crop insurance. Traceability data is also an essential element for ensuring the quick and effective management of a product recall. It allows the cause of an issue to be analyzed quickly by tracing the origin of the product and identifying the location of implicated product lots in the produce supply chain. For each individual business, a traceability system usually consists of being able to trace product/lots one step back (i.e., where did it come from) and one step forward (i.e., where did it go). Ideally, this allows for each product/lot to be traced throughout the produce supply chain, even if the traceability systems used by each individual business are not the same. Traceability systems are incredibly valuable to the produce industry because they can help reduce the size of recalled product lots, exclude a grower or area from an outbreak altogether, and lessen the negative impact on consumer confidence. Among their numerous benefits, a traceability system can protect the supply chain and individual businesses from any interruptions during a recall.

Who Should Use This Document?

This document is targeted to those who have a role in the produce supply chain, such as owners, operators, managers, and decision makers involved in the growing, shipping, receiving, storing, processing, and selling of produce. See Table 1 and Figure 1 below for more information. The priority of traceability is to protect the consumer through faster and more precise identification of a product being recalled, which means that traceability responsibility is spread among many stakeholders along the produce supply chain. Many, if not all of these stakeholders use different traceability systems. In order to have an effective end-to-end traceability system, these stakeholders and systems must be able to communicate and interconnect with each other through common attributes, platforms, or procedures.

No matter how limited or advanced a business’ current traceability system is, they can use the minimum best practices for traceability in this document to enhance or improve the traceability system they currently have in place. Tracing each piece of produce and identifying the size of the lot within which it originated are key to developing an effective traceability system. A more complex traceability system may be designed to narrow down the size of a lot, so that the lot can be traced even further, reducing the company’s liability if a lot must be recalled.
Table 1: Typical Roles in the Produce Supply Chain

<table>
<thead>
<tr>
<th>Primary Role (in scope)</th>
<th>Activities</th>
<th>Example of the Role in the Supply Chain</th>
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<tbody>
<tr>
<td>Grower</td>
<td>Grow, Harvest, Store, Sell, Ship</td>
<td>Farm</td>
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<tr>
<td>Produce Packer/Re-Packer</td>
<td>Aggregate, Pack, Sell, Ship</td>
<td>Agricultural Cooperative, Pack House, Retail Pack House</td>
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<td>Distributor/Trader</td>
<td>Store, Sell, Ship</td>
<td>Bagged/Chopped Salad Manufacturer, Chopped/diced/shredded produce manufacturer/processor, Triple rinsed, bagged produce processor, Ripener, etc.</td>
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<td>Manufacturer/Processor</td>
<td>Process or Manufacture, Ripens, Store, Pack, Sell, Ship</td>
<td>Supermarket, Grocery Store, Grocery Chains</td>
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<tr>
<td>Retail Store</td>
<td>Receive, Store, Process, Pack/Label and Display, Sell to Customer</td>
<td>Restaurant, Fast Food Restaurant Chain</td>
</tr>
<tr>
<td>Food Service Operators</td>
<td>Store, Prepare, Sell to Customer</td>
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</table>

Secondary Role (outside the scope) | Activities | Examples of the Role in the Supply Chain |
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<td>Third Party Logistics Service Provider</td>
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<td>Truck, Rail, Ship, Air</td>
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<tr>
<td>Supplier</td>
<td>Produce and Ship</td>
<td>Producer of packing materials, supplies, seeds, and plants, etc.</td>
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<tr>
<td>Regulatory Organizations</td>
<td>Compliance Oversight</td>
<td>Customs, Inspection Agencies, etc.</td>
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**CHALLENGES TO IMPLEMENTING PRODUCE TRACEABILITY**

Given the complexity of the produce supply chain, certain limitations and barriers to implementing produce traceability systems must be acknowledged. First is the diversity of operations within the produce supply chain, with businesses varying in size, current involvement in produce traceability, and access to connective technology such as broadband. Second is the number of companies that still use cash sales as a key segment of their produce business. Any one of these factors can help or hinder success in implementing a produce traceability system. Cost must also be acknowledged as a major barrier to entry, which is again affected by the previously mentioned barriers. These factors have been considered in the creation of this document.

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4 http://www.fao.org/3/i7665e/i7665e.pdf
ESTABLISHING THE COMPONENTS OF A TRACEABILITY SYSTEM

One challenge identified by the Task Force was that many businesses have their own customized (internal) traceability system that work well for their business, but they may not be used by, connected to, or understood by other external businesses in the produce supply chain. The following steps are intended to focus on common attributes that can be used by different platforms and systems.

Figure 1: Produce Supply Chain Traceability Flow Diagram

Note: This process flow diagram shows the entire produce supply chain. Individual operations should identify steps both inside and outside their operations to identify how produce flows within and beyond their operations.

Step 1: Creating a Process Flow Diagram

Illustrated in Figure 1 is a simplified flow diagram that depicts the flow of produce through the supply chain, from its start as a raw agricultural commodity (RAC) through the process to become a final consumer product. Companies developing a traceability system for the first time, or looking to improve a traceability system they already use, should first develop a detailed process flow diagram to identify the way produce enters, flows through, and exits their operation/facility. Companies who have a food safety plan (FSP) or Hazard Analysis Critical Control Point (HACCP) plan may use these plans to develop this process flow diagram.
For traceability to work most efficiently, each step in the supply chain must be able to seamlessly trace produce as it moves from one step to another, both forward and backward, internally within a farm, distribution and/or processing facility, and/or retailer and externally between a farm, distribution and/or processing facility, and/or retailer. Common systems, platforms, or attributes are recommended to make the traceability system across internal and external operations function more efficiently, but this also is recognized as one of the biggest challenges.

After the process flow diagram has been developed, the facility should follow the steps provided next. These steps outline the minimum requirements that are needed to build an effective traceability system.

**Step 2: Establishing Lot Identifying Codes (Lot IDs)**

The second step in establishing a traceability system is to decide what a lot is and how you want to track it. As recommended above, businesses should create a process flow diagram that models the flow of produce, at every point, through their business operation. Once the process flow diagram is complete, points where produce enters (inclusion) and exits (exclusion) a business operation should be identified, as well as any points at which the produce is transformed into a new product (dilution). After each point of entry, exit, and transformation is identified, a product labeling process will need to be established to identify unique lots and give each unique lot a unique lot identifying code (Lot ID). The process flow diagram will help guide when Lot IDs are created, assigned, and followed throughout the entire business operation, in a consistent and documented manner, as well as when they travel with other lots that are exiting the business operation to the next user/business or exiting to another section of the same business to be further comingled or transformed.

A Lot ID can be a challenge for many facilities to develop because the ID needs to be able to identify important information about the product, such as commodity type, variety, date of harvest, date of packing, and any other pertinent information that allows the lot to be easily traced back to its origin. The FSMA Proposed Rule for Food Traceability requires the following information be included when creating Lot IDs for produce types listed within the law:

- the location identifier and location description for where the produce originated from (e.g., farm) or new product was created (e.g., by a manufacturing/processing step), and the date creation was completed;
- the traceability product identifier (aka Lot ID) and traceability product description for the produce;
- the quantity and unit of measure of the produce lot being tracked (e.g., 6 cases, 25 returnable plastic containers, 100 totes, 200-pound bags); and
- the reference record type(s) and reference record number(s) (e.g., “Production Log 123,” “Batch Log 01202021”) for the document(s) containing the information specified in the three items above.\(^5\)

When creating Lot IDs, it is recommended that businesses consider using this information to be sure they are capturing the correct components as they build their traceability system.

**Step 3: Product Labeling**

The goal of product labeling for the purposes of traceability is to ensure each container/package/pallet is labeled so that it can be traced throughout the produce supply chain and used as an identifier for your business operation and and/or business location if multiple locations converge into one facility.

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Additionally, as the product moves through the produce supply chain, each business operation that handles the product may also use product labels to trace additional information such as the weight, SKU numbers, quantities/volumes, dates in/out, and other pertinent information about processes that may have transformed the product into a new product.

To allow efficient and expedient traceability:

- the label should be human readable for all subsequent end users. The Lot ID must be easily identified, accurately readable, and simple enough to be written down correctly by any person.
- the label should stand out on the package, pallet label, and Bill of Lading (BOL) so that customers can clearly determine the Lot ID they should use in their traceability records.

While this guidance does not promote the use of the Produce Traceability Initiative/GS1-128 barcode system, if you are incorporating a bar code, GTIN/GS1, QR code, or similar into your records, it is recommended that you provide training or guidance to those using this system to ensure they understand your expectations and are scanning/integrating the correct Lot ID into their traceability records.

Figure 2: Examples of Produce Product Labels Identifying a Specific Item From Simple to Complex

Consumer packaging contains:

Making Your Lot ID Stand Out

The Lot ID should be obvious on every package, container, and pallet, and listed on every Bill of Lading (BOL) that leaves the business.

One of the most important points that this guidance document makes is that a singular, consistent Lot ID be used in every record associated with a single lot. If the product is transferred to another facility, distributor, or processor, the text “LOT” or “Lot ID”, barcodes, or QR codes should be printed boldly and visibly next to the Lot ID.
Every recall or traceback starts with identifying the lots that are involved in the recall. Inconsistency in the way Lot IDs are recorded from business to business, or, from location to location, is the number one reason products cannot be traced back to their origin, making efforts to trace the products difficult and ultimately unsuccessful.

Once Lot IDs have been established and labeling is in place to allow these Lot IDs to travel with the product, it is important to consider how this information can be easily traced through each step of the produce supply chain. Reviewing records and/or conducting mock recalls, as described below, can be used as methods to verify and validate the effectiveness of your traceability system.

**Figure 3: Example of Case Label Identifying a Lot ID**

![Example of Case Label Identifying a Lot ID](image)

GTIN case label contains:

<table>
<thead>
<tr>
<th>UPC code</th>
<th>Lot #</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Item: KALE/CUT
- Pack: CLMSSHILL 6 CT X 1 LB
- COO: Product of USA
- SATUR FARM 4195 Middle Country Rd, Calverton, NY 11933

**Step 4: Record Keeping**

**General Information**

While records can be maintained in a variety of ways and formats by both electronic and manual systems, some commonalities need to exist. If your traceability system is stored in a database, no matter the form, the Lot IDs should always be linked to and associated with all the records you have on file for that product. For example:

- Any final product, raw or packaged, should have a listing of the Lot ID numbers that it contains.
- The Lot ID numbers that these records contain should:
  - match the Lot ID numbers used throughout your business records (e.g., invoices, bills of lading, shipping papers), and
  - match the Lot ID numbers used before product enters your operation and when it exits your business (e.g., one step back, one step forward).

**Traceability Record Content**

Your traceability records should enable you to find a Lot ID and any contributing Lot IDs quickly and accurately.
Your traceability records should have basic information that regulatory officials will require if your business is involved in a recall. Having access to simple records that quickly and accurately show the movement of the suspect Lot IDs through your business operations – and the ability to be able to isolate affected products – will minimize your exposure. Including process and/or comingling information has little advantage to minimizing a recall.

**Basic Record Content**

Earlier in this document, we explained how to create a process flow diagram of your business to identify and delineate lot entry/exit points. This exercise is also used to create records for the following components of your produce traceability system.

- **Lot Entry Points**: An up-to-date listing of your lot entry points is essential. This should also include convergence where other Lot IDs enter your process. The lot entry points should also correlate to the daily records you keep that identify what Lot IDs are included in your final product(s).
- **Process Flow**: An up-to-date listing of the physical flows in the process is key. This information should correlate to the daily records maintained by each business operation so they can be used to follow the flow of Lot IDs through the process. These records should also include any transfers or shipment records for finished products or products that exit your business.
- **Lot IDs**: This record is only a short, written description of how your Lot ID is structured, what the digits represent, and what is included in the lot.

See Appendix 6 or more information about Key Data Elements (KDEs) and Critical Tracking Events (CTEs) that could and should be used (as proposed by FDA’s Traceability List Rule as listed below) to create and/or complement your lot entry/exit and process flow records.

**Daily Records**

Businesses should keep or enter records of the process that the operators will keep or that will be kept by the electronic system on an ongoing basis. At a minimum, records should be kept or entered daily.

**Recall Records**

A recall is defined by the FDA as a firm’s removal or correction of a marketed product that FDA considers to be in violation of the laws it administers and against which the agency would initiate legal action, (e.g., seizure). A recall does not include a market withdrawal or a stock recovery. (See 21 CFR 7.3(g).)

The record/report made for a mock or actual recall should contain the following information from your traceability records:

- a listing of raw products and packaging materials contributing to the final, product(s) considered in the recall,
- a listing of the final products that could be included in the recall (see Appendix 8 below for additional guidance on what products should be included and/or excluded in a recall), and
- any final disposition or outbound shipping records for “contaminated” products.

The mock or actual recall record is recommended to contain the:

- business initiating the mock or actual recall report,
- date/time,
• businesses selected to be part of the recall,
• address of business operation for each product listed;
• item (the product),
• Lot ID(s) selected,
• date(s) selected,
• quantity, and
• unit of measure.

It is also recommended that this information be either exported into a spreadsheet or database (e.g., Microsoft Excel, Access) or be entered into a spreadsheet for ease in understanding the process flow and distribution processes.

Historically, PDF documents and boxes of handwritten documents have been sent to investigators in a recall situation to assist with visually locating the common points of convergence. However, this can take days or even weeks. If selecting an electronic traceability system, it is recommended that a business select a system that allows users to export a final report quickly and easily, in the form of a spreadsheet or similar document type. Businesses that use manual record traceability systems should routinely enter the records they accumulate into a spreadsheet so that they too can quickly produce a final report, when requested.

Post-Production Shipping Records (Storage Warehouse to Distribution Centers to Retailers and/or Restaurants, etc.)

Outside the physical processing environment (within the supply chain), traceability becomes discrete, meaning each product that can be affected is contained in one package. The complex part of traceability is in the processing of produce. As long as an easily identifiable Lot ID is contained in the Bill of Lading (BOL), shipping records, receiving records, warehouse system, etc., when suspect product(s) are traced and identified, each can be quickly held, tested, and removed from the produce supply chain or destroyed.

Record Retention, Security, and Backup

Your traceability records should be retained for at least the same duration as your other regulatory records. See Appendix 15 for examples of such durations.

Proposed Records of Growing, Receiving, Transforming, Creating, and Shipping Produce on the FDA’s Food Traceability List (FTL)6

For businesses that grow, harvest, hold/cool, pack, transport, or transform produce that is listed on the FDA’s FTL, below is an example of the proposed records that may be required:

• the business name, point of contact, and phone number of the grower of the produce, and the growing coordinates;
• the business name, point of contact, and phone number of the harvester of the produce, and the date(s) and time(s) of harvesting;
• the location identifier and location description of the place where the produce was cooled, and the date and time of cooling (if applicable);
• the location identifier and location description of the place where the produce was packed, and the date and time of packing;

• the location identifier and location description of the place where the food was transported, and the
date and time of transportation; and/or
• the location identifier and location description of the place where the produce was transformed, and
the date and time of transformation.

Additionally, for each produce type on the proposed FTL, a business must establish and maintain records
containing and linking the traceability lot code of the produce created to the following information:
• the location identifier and location description for the immediate previous source of the produce;
• the entry number(s) assigned to the produce (if the produce is imported);
• the location identifier and location description of where the produce was received, and date and time
you received the produce;
• the quantity and unit of measure of the produce (e.g., six cases, 25 returnable plastic containers,
100 crates, 200 pounds);
• the traceability product identifier and traceability product description for the produce;
• the location identifier, location description, and point of contact for the traceability lot code generator;
• the reference record type(s) and reference record number(s) (e.g., “invoice 750a,” “bol 042520 xyz”)
for the document(s) containing the information specified in the bullets listed in this section; and
• the name of the transporter who transported the produce to you.
ADDITIONAL PRODUCE TRACEABILITY RESOURCES

The following resources and corresponding links below provide more in-depth guidance on how to develop and implement a complex and comprehensive produce traceability system.

1. **Food and Agriculture Organization of the United Nations, Food Traceability Guidance:**
   http://www.fao.org/3/i7665e/i7665e.pdf
   a. The scope of this guidance document establishes both the minimum requirements and the best practices for the sharing of information between trading partners. This guide covers:
      i. traceability practices from the supplier’s processing facility to the point of sale to the consumer;
      ii. all food products for human consumption;
      iii. all levels of the product hierarchy, including pallets, cases, and consumer items; and
      iv. all supply chain segments including suppliers, wholesalers, distributors, and retailers.

2. **The Produce Traceability Initiative:**
   a. Supply chain-wide adoption of electronic traceability: https://www.producetraceability.org/
      https://www.producetraceability.org/documents/Global_Traceability_Implementation_Fresh
      Fruit_Veg.pdf
      i. This document serves as a guide to implementing GS1 traceability standards in the fresh fruit and vegetable (produce) industry supply chain.
   b. Case Label & Data Elements for Industry Use V 1.2 March 2021:
      https://www.producetraceability.org/documents/FINAL_PTI_Harmonized_Traceability_Case
      Label_March_2021.pdf
      i. This document details best practices for implementing and formatting case labels.
   c. Resources and tools: https://www.producetraceability.org/resources/
      i. The resource provides background information on each of the steps and best practices to assist the industry in accomplishing the milestones of produce traceability.

3. **Fresh Fruit and Vegetable Traceability Guideline:**
   https://www.gs1.org/sites/default/files/docs/traceability/Global_Traceability_Implementation_Fresh
   Fruit_Veg.pdf

4. **U.S. Food & Drug Administration, Which Key Data Elements Would Apply to Me?:**
   https://www.fda.gov/food/food-safety-modernization-act-fsma/which-key-data-elements-would-apply-
   me
   a. This resource provides guidance on implementing traceability in fresh fruit and vegetable supply chains using the GS1 standards for identification, data capture, data sharing, and the GS1 Global Traceability Standard.

5. **National Good Agricultural Practices Program:**
   https://gaps.cornell.edu/educational-materials/decision-trees/traceability/
   a. This program provides accessible educational materials and tools on produce traceability.

6. **Proposed Rule: Requirements for Additional Traceability Records for Certain Foods: Key Terms Glossary:**
   https://www.fda.gov/media/143468/download
   a. The proposed rule, “Requirements for Additional Traceability Records for Certain Foods,” includes definitions for several key terms used in the regulation. The proposed definitions are summarized.
APPENDICES
Appendix 1: Glossary of Traceability Terms
Appendix 2: A Multi-Point Traceability Checklist
Appendix 3: Example of Completed Process Flow Diagram for Ready-to-eat Fresh Cut Vegetables
Appendix 4: Traceability Log
Appendix 5: Lot ID/Case/Product Label Samples
Appendix 6: Key Data Elements (KDEs) and Critical Tracking Events (CTEs)
Appendix 7: Types of Software to Support Traceability
Appendix 8: How Traceability Aids in Recall: A Training Aide
Appendix 9: Buyer Questionnaire Template
Appendix 10: Simplified Process Flow Template for Small-Medium Growers/Plain Grower Communities
Appendix 11: Produce Record Keeping Example for Cash Sales, Small-Medium Businesses, and Convenience Stores, Terminal Markets, and Produce Auctions
Appendix 12: Creating a Communication Plan to Reach Customers
Appendix 13: GS1 Traceability
Appendix 14: Shopper Cards and Traceability
Appendix 15: Record Retention
Appendix 16: Examples of Produce Safety Sample Labels/Signs to Educate Consumers
APPENDIX 1 - GLOSSARY OF TRACEABILITY TERMS

Critical Tracking Event (CTE): An event in the supply chain of a food involving the growing, receiving (including receipt by a first receiver), transforming, creating, or shipping of the food. Each CTE has specific recordkeeping requirements.

Dilution: Any points in the distribution process at which the produce is transformed.

Electronic Records: When the collection of Lot IDs or the process flow between points are collected by scanners or are manually collected and entered into a database.

Exclusion: Points in the distribution process where produce exits.

External traceability: Relates to product information that an operation receives from suppliers (the preceding point in the produce supply chain) or provides to customers (the next point in the produce supply chain).

Food Traceability List: The list of foods for which additional traceability records would be required if the proposed rule is finalized. The term “Food Traceability List” includes both to the foods specifically listed and foods that contain listed foods as ingredients.7

Final Products: Products ready to be shipped from one business to another, or to the consumer.

FSMA: Food Safety Modernization Act (FSMA) of 2011.

GTIN/GS1: The Global Trade Item Number (GTIN) can be used by a company to uniquely identify all of its trade items. GS1 defines trade items as products or services that are priced, ordered, or invoiced at any point in the supply chain.8

Human-Readable: When a person needs to write down a Lot ID on paper, the Lot ID must be easily identified as the proper identifier to be recorded and must be in a large enough font to be read in average light with average corrected vision.

Inclusion: Points in the distribution process where produce enters.

Interconnected Traceability Systems: The ability for internal traceability systems to communicate with external traceability systems allowing a mechanism to instantaneously trace the entire lifecycle of food products from origin through every point of contact (internal and external) on its journey to the consumer. Interconnectivity bolsters credibility, efficiency, and safety.9

7 Proposed Rule: Requirements for Additional Traceability Records for Certain Foods Key Terms Glossary: https://www.fda.gov/media/143468/download
8 https://www.gs1.org/standards/id-keys/gtin
Internal Traceability: A system for produce growers, processors, packers, distributors, and others in the produce supply chain that involves tracking all inputs, where those inputs were used in manufacturing (as relevant), and all finished products made. Further, it requires that records be kept of where all finished products go.\(^{10}\)

Key Data Elements (KDE): Information associated with a critical tracking event for which a record must be established and maintained.\(^{11}\)

Location Description: A complete physical address and other key contact information, specifically the business name, physical location name, primary phone number, physical location street address (or geographical coordinates), city, state, and zip code for domestic facilities and comparable information for foreign facilities, including country. An exception for fishing vessels is that the “location description” would mean the name of the fishing vessel that caught the seafood, the country in which the fishing vessel’s license (if any) was issued, and a point of contact for the fishing vessel.\(^{12}\)

Location Identifier: A unique identification code that an entity assigns to the physical location name identified in the corresponding location description; except that for fishing vessels, “location identifier” would mean the vessel identification number or license number (both if available) for the fishing vessel.\(^{13}\)

Lot: The food produced during a period of time at a single physical location and identified by a specific code. A lot may also be referred to as a “batch” or “production run.” While each firm determines the size or quantity of a lot, we recommend that lots consist of product produced under uniform conditions, be as small as possible, and do not exceed 24 hours of production. Limiting the size of a lot allows for more precise traceability of a product and helps narrow the scope of potentially recalled product.

Lot ID: A unique identification code that an entity assigns to the physical location name identified in the corresponding location description; except that for fishing vessels, “location identifier” would mean the vessel identification number or license number (both if available) for the fishing vessel.

Manual Records: When an operator writes the Lot IDs or process flows between process points onto paper or inputs it into an electronic system.

Produce Safety Rule: This rule sets standards for the growing, harvesting, packing, and holding of produce for human consumption.

QR Code: A QR code is a machine-readable code consisting of an array of black and white squares, typically used for storing URLs or other information for reading by the camera on a smartphone.\(^{14}\)

Raw Agricultural Commodity: Raw produce that is not subject to any cutting, peeling, or further processing.

Recall: The process of identifying specific lots of product impacted by food safety or regulatory noncompliance, withholding, or retrieving from commerce and safeguarding to prevent distribution.

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\(^{10}\) From:https://link.springer.com/chapter/10.1007/978-3-030-10902-.

\(^{11}\) GS1 Fresh Fruit and Vegetable Traceability Guideline: https://www.gs1.org/sites/default/files/docs/traceability/Global_Traceability_Implementation_Fresh_Fruit_Veg.pdf

\(^{12}\) https://www.fda.gov/media/143468/download

\(^{13}\) https://www.fda.gov/media/143468/download

\(^{14}\) Oxford Dictionary
Traceability Data: Produce traceability data is needed to provide parties downstream with information on what happened upstream. These data need to be recorded by each individual party and are defined in this guideline as Key Data Elements (section 7) and Critical Tracking Events (section 5). Traceability data can be pushed from one party to the next party or provided on request. Two main data sharing standards are supported in this guideline: EDI and EPCIS. The guideline also supports sharing of data in barcoded form, as explained in section 3. Traceability data can be used for various business purposes. The most important uses are described in this guideline (see section 3.3).
APPENDIX 2 - A MULTI-POINT TRACEABILITY CHECKLIST

The following simplified multi-point traceability checklist can be used to quickly identify what points in the process flow diagram may be missing in order to create a more robust traceability system.

Farm/Field (if applicable)
- Lot IDs for each load and receiving destination recorded

Receiving
- Lot IDs for each (farm) load can be identified by receiving record or shipper
- Lot IDs for each load is recorded with storage destination

Warehouse
- Lot IDs are recorded, received raw produce must match the shipper’s records
- Lot IDs recorded are same as those being used by all process areas/steps downstream

Process Areas
- KDEs - Lot ID entry points are identified and recorded (if applicable)
- Lot IDs are being recorded as produce is added
- Lot IDs Critical Tracking Events are identified and recorded

Final Product(s)
- Final product Lot ID is clearly identified
- Lot ID is human-readable and/or electronically readable by the customer/next user/end user
- Lot IDs are recorded for each lot leaving the business operation

Outbound Shipping Records
- Final product Lot ID is clearly identified in shipping records
- Shipping records include customer name, carrier information, and Bill of Lading (BOL)/invoice number

Records
- Critical Tracking Events are current and recorded (if applicable)
- KDE - Lot Entry Point records are current (if applicable)
- Final products can be linked to Lot IDs they contain
- Lot IDs are recorded consistently throughout the business operation
- Common points of convergence in business operations are identified with Lot IDs recorded
APPENDIX 3\textsuperscript{15} - EXAMPLE OF COMPLETED PROCESS FLOW DIAGRAM FOR READY-TO-EAT FRESH-CUT VEGETABLES

1. Product name(s):
   - Peeled baby carrots
   - Shredded lettuce
   - Shredded cabbage
   - Mixed vegetable salad
   - Cauliflower and broccoli florets
   - Sliced tomatoes
   - Sliced sweet peppers
   - Sliced celery

   \textbf{Note}: the manufacturer may reference a computer file where a complete list of products including various package sizes can be accessed

2. Important product characteristics (Aw, pH, preservatives, etc.):
   - No barrier to pathogens

3. How the product will be used:
   - Raw
   - Ready-to-eat

4. Packaging:
   - Plastic bags
   - Single serving containers (sealed plastic pouches or plastic trays [clam shells])
   - Bulk containers (plastic bags in a corrugated cardboard carton)

5. Shelf life:
   - X days at 4°C or less

6. Where it will be sold
   - Retail
   - Hotels/restaurants/institutions

7. Labelling instructions
   - Best before date
   - Keep refrigerated

8. Special distribution control
   - Temperature control (X °C)

9. List of ingredients and incoming materials:
   - Fresh vegetables:
     - carrots (BCP)
     - lettuce (BCP)
     - broccoli (BCP)
     - cabbage (BCP)
     - cauliflower (BCP)

☐ celery (BCP)
☐ tomatoes (BCP)
☐ sweet peppers (BCP)

10. Water (well and/or municipal):
   ☐ Water (BCP)

11. Packaging material:
    ☐ Plastic pouches (BCP)
    ☐ Plastic trays (clam shells) (BCP)
    ☐ Plastic bags (BCP)
    ☐ Plastic liners (BCP)
    ☐ Corrugated cardboard cartons (BCP)

12. Antimicrobial Treatment:
    ☐ Sodium hypochlorite (C)

13. Food Additives:
    ☐ Preservatives, pH adjusters (citric acid, ascorbic acid) (C)
APPENDIX 4 - TRACEABILITY LOG

The following is an example of a log a business could use when conducting a mock recall.

Sample Mock Recall Log

Name of operation: Happy Cabbage Farm
Conducted by: Fred
Date: 8-25-13

Farm Address: 210 W. Farm Rd. Any City, NY 14456

Selected Lot number(s): 224-5-1-M-13, 224-5-1-A-13

Please see the food safety plan for overall traceback procedures.

<table>
<thead>
<tr>
<th>Lot #</th>
<th>Commodity/ Variety</th>
<th>Field of origin (#)</th>
<th>Harvest date</th>
<th>Harvest crew (# or name)</th>
<th>Packinghouse address</th>
<th>Packing date</th>
<th>Packing crew (# or name)</th>
<th>Shipping date</th>
</tr>
</thead>
<tbody>
<tr>
<td>224-5-1-M-13</td>
<td>Cabbage/Fresno</td>
<td>Field 5 (see map)</td>
<td>8-12-13</td>
<td>Crew #1</td>
<td>Field packed</td>
<td>8-12-13</td>
<td>Crew #1</td>
<td>8-13-13</td>
</tr>
<tr>
<td>224-4-1-A-13</td>
<td>Cabbage/Fresno</td>
<td>Field 4 (see map)</td>
<td>8-12-13</td>
<td>Crew #1</td>
<td>Field packed</td>
<td>8-12-13</td>
<td>Crew #1</td>
<td>8-13-13</td>
</tr>
</tbody>
</table>

Additional information about the selected lots: No overhead irrigation was applied and manure was last applied three years ago to these fields. Produce was field packed and sent directly to store.

<table>
<thead>
<tr>
<th>Customer contacted</th>
<th>Date lot(s) was received</th>
<th>Amount of lot remaining in customer’s possession</th>
<th>Amount of lot sold</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailer of choice</td>
<td>8-13-13</td>
<td>5 bags of lot 224-5-1-M-13</td>
<td>All of 224-4-1-A-13</td>
<td>20 bags of lot 224-5-1-M-13</td>
</tr>
</tbody>
</table>

Reviewed by: ___________________________ Title: ___________________________ Date: ___________________________

On-Farm Decision Tree Project: Traceability — v11 8/1/2014

This traceability log and a decision tree to help guide the implementation of a traceability program is available at https://gaps.cornell.edu/educational-materials/decision-trees/traceability/

Some additional sample traceability documents for a harvest record and a sales records can be found below.


16 Cornell University
APPENDIX 5 – LOT ID/CASE/PRODUCT LABEL SAMPLES

**CASE LABELS:** Provide a means to identify product to other trading partners. The label shows the product identification (i.e., the GTIN) and associated batch/lot in an easy-to-read human-readable form and should also, as a best practice, provide case information using GS1-compliant barcodes. This ensures cases can be identified quickly and accurately at any subsequent point in the supply chain, anywhere in the world. Your local GS1 Member Organization can help your company understand how to produce barcodes and provide guidance on label placement. **Error! Bookmark not defined.**

![](image1)

**PLU label with lot code, GTIN, variety:**

![](image2)

**Lot label with lot code and brand:**

![](image3)
APPENDIX 6 - KEY DATA ELEMENTS AND CRITICAL TRACKING EVENTS

The FDA is proposing to establish additional traceability recordkeeping requirements (beyond what is already required in existing regulations) for persons who manufacture, process, pack, or hold foods the FDA has designated for inclusion on the Food Traceability List (FTL). The proposed rule, “Requirements for Additional Traceability Records for Certain Foods” (Food Traceability Proposed Rule), when finalized, would propose to standardize the data elements and information firms must establish and maintain, and the information they would need to send to the next entity in the supply chain to facilitate rapid and accurate traceability needed to prevent or mitigate foodborne illness outbreaks.

At the core of this proposal is a requirement for those who manufacture, process, pack, or hold foods on the Food Traceability List (FTL) to establish and maintain records containing Key Data Elements (KDEs) associated with different Critical Tracking Events (CTEs). While the proposed requirements would only apply to those foods on the FTL, they were designed to be suitable for all FDA-regulated food products. FDA would encourage the voluntary adoption of these practices industry-wide.

Key Data Elements (KDEs)

KDEs ensure that captured and recorded data can be interpreted by all supply chain partners and explain the who, what, when, where, and why (see Table 1: Sample Key Data Elements). To establish KDEs, simply list the process points where a new Lot ID enters the process, such as the receiving bay, storage unit, conveyor, wash bay, etc. Some facilities will have several production areas/lines that sort, clean, pack and/or process different produce types. For traceability purposes, we recommend that each production line be modeled as individual facilities.

Which KDEs apply to me?

If you grow, receive, store, process, and/or distribute any food on the FDA’s Food Traceability List (FTL) these KDEs may be required by the FDA under the FSMA Proposed Rule for Food Traceability:

1. Growing: For products such as fruits and vegetables, growing is generally the first step in the supply chain. For each food on the FTL that is grown, the proposed rule would require the grower of the food to establish and maintain records containing and linking the traceability lot code of the food to the following growing KDEs - growing area coordinates.

2. Receiving: An event in a food’s supply chain in which a food is received by a customer (other than a consumer) at a defined location after being transported (e.g., by truck or ship) from another defined location. For each food on the FTL that is received, the proposed rule would require the receiver to establish and maintain records containing and linking the traceability lot code for the food to the: receiving KDEs and the first receiver (first person [other than a farm] who purchases and takes physical possession of a listed food).

3. Transformation: An event in a food’s supply chain that involves changing a food on the Food Traceability List, its package, and/or its label (regarding the traceability lot code or traceability product identifier), such as by combining ingredients or processing a food (e.g., by cutting, cooking, commingling, repacking, or repackaging). Transformation does not include the initial packing of a single-ingredient food or creating a food. For the food(s) on the FTL used in transformation, the transformer of the food would be required to establish and maintain records containing and linking the new traceability lot code of the food produced through transformation to the transformation KDEs.

4. Creation: The making or producing of a food on the Food Traceability List through manufacturing or processing using only ingredient(s) that are not on the Food Traceability List. Creation does not include originating or transforming of a food. A person who creates a food on the FTL would be required to establish and maintain records containing and linking the traceability lot code of the food created to the creation KDEs.

17 https://www.fda.gov/food/food-safety-modernization-act-fsma/food-traceability-list
5. **Shipping**: An event in a food’s supply chain in which a food is arranged for transport (e.g., by truck or ship) from a defined location to another defined location at a different farm, a first receiver, or a subsequent receiver. The proposed rule would require persons who ship a food on the FTL to establish and maintain records containing and linking the traceability lot code(s) for the food to the shipping KDEs.

**Table 1: Sample Key Data Elements**

<table>
<thead>
<tr>
<th>WHO</th>
<th>GLN of party</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Used to identify the grower or farming company that did the first sale (see sales note). Also used to identify buyers and sellers further downstream.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHAT</th>
<th>GTIN +</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Global Trade Item Number that identifies the type of trade item.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Batch/lot number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The batch/lot number associates a trade item with information the manufacturer considers relevant for traceability of the trade item. The data may refer to the trade item itself or to items contained in it. In combination with the GTIN the batch/lot number identifies a group of trade item instances.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Serial number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A code, numeric or alphanumeric, assigned to an individual instance of an entity for its lifetime. In combination with the GTIN the serial number identifies exactly one trade item instance.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The quantity of the respective trade item.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Net weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Used to identify the net weight of the trade item. Net weight excludes any packaging materials. Has to be associated with a valid unit of measurement.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>SSCC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Serial Shipping Container Code that identifies an individual logistic unit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHERE</th>
<th>GLN of physical location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Used for location identification (Farm, Field, portion of field, etc...). Used to identify production and inventory locations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Name and address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name and address of the party/location.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Additional IDs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identifiers used in addition to the GLN to identify the party/location.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Tax number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VAT number, company tax number or equivalent ID of the party.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>FBO approval number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number used to identify a food business operator (FBO) in an official registry related to food standards and safety.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN</th>
<th>Date and time of Critical Tracking Event (CTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E.g. production, shipping, receiving</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHY</th>
<th>Business process of Critical Tracking Event (CTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Used to record the process context of the critical tracking event. Example: Shipping.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Status of the traceable object subsequent to the CTE. Example: Available for sale, quarantined.</td>
</tr>
</tbody>
</table>

| Transaction reference    | E.g. sales note, PO reference, ... |

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18 https://www.gs1.org/sites/default/files/docs/traceability/Global_Traceability_Implementation_Fresh_Fruit_Veg.pdf
Critical Tracking Events

Critical Tracking Events (CTEs) have been defined as those events that must be recorded to allow for effective traceability of products in the supply chain. CTEs in the produce supply chain are the points where product is transformed and can involve the growing, receiving (including receipt by a first receiver), creating, or shipping of produce and determined to be points where data capture is necessary to successfully trace a product. While the tracking of CTEs is voluntary, each CTE a business does trace has specific recordkeeping requirements.

Transformation for the produce industry can be where the produced is packaged or repackaged – where different Lot IDs get combined, or where different produce commodities are comingled together, further processed into a new product, or transported to another facility.

Each business devising CTEs can create a single CTE or series of CTEs for each one of the steps, beginning, intermediary, or final, they are involved in. When identifying and documenting CTEs, it is important to keep the events simple, flexible, and scalable.

As businesses adopt the CTE concept into their operations, the produce supply chain will become increasingly traceable. CTEs have also been compared to conducting a hazard analysis and identifying critical control points as seen in the generation of a Food Safety Plan (FSP) or Hazard Analysis Critical Control Point (HACCP) Plan. For more information, see below.

Table 2: Comparison of Hazard Analysis and Critical Control Points (HACCP) and Critical Tracking Events (CTEs)

<table>
<thead>
<tr>
<th>HACCP</th>
<th>CTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct a hazard analysis</td>
<td>Identify products and product inputs to be traced</td>
</tr>
<tr>
<td>Identify critical control points</td>
<td>Identify critical tracking events</td>
</tr>
<tr>
<td>Determine critical limits</td>
<td>Determine key data elements</td>
</tr>
<tr>
<td>Establish monitoring procedures</td>
<td>Establish data collection procedures</td>
</tr>
<tr>
<td>Establish corrective actions</td>
<td>Establish data storage procedures</td>
</tr>
<tr>
<td>Establish verification procedures</td>
<td>Conduct mock tracebacks/recalls</td>
</tr>
<tr>
<td>Ensure recordkeeping</td>
<td>Maintain written records of key elements of your produce traceability plan</td>
</tr>
</tbody>
</table>

19 The use of critical tracking events and key data elements to improve the traceability of food throughout the supply chain to reduce the burden of foodborne illnesses
Benjamin David Miller30 November 2011
## APPENDIX 7 - TYPES OF SOFTWARE TO SUPPORT TRACEABILITY

<table>
<thead>
<tr>
<th>Software Name</th>
<th>Software Description</th>
<th>Cost</th>
<th>Client OS</th>
<th>Hosting</th>
<th>Industry Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produce Pro</td>
<td>ProducePro is an all-in-one electronic solution that helps produce distributors and wholesalers become more efficient, minimize waste and loss, and grow their revenue. ProducePro helps manage your businesses procurement process</td>
<td>$2000/Annually</td>
<td>Mac, Web, Windows, iOS, Android</td>
<td>Cloud Hosted</td>
<td>6+ Merchants use this software. No major complaints. Some merchants have been using it since 1994</td>
</tr>
<tr>
<td>Visual Produce</td>
<td>Visual Produce is a comprehensive all-purpose electronic solution designed specifically for the fresh produce industry. The program includes typical financial back-office features (GL/AR/AP/PO/IC/PR) as well as Warehouse Management, Mobile Delivery, Visual…</td>
<td>$500/mo nth</td>
<td>Web, Windows, iOS, Android</td>
<td>Cloud or On-Premises</td>
<td></td>
</tr>
<tr>
<td>Produce Inventory Control System (PICS)</td>
<td>Specifically designed for the high-speed world of produce, Produce Inventory Control System (PICS) software effectively handles all the specific day to day needs of companies who work in the produce industry in Canada and the United States: Wholesalers…</td>
<td></td>
<td>Windows</td>
<td>Cloud or On-Premises</td>
<td></td>
</tr>
<tr>
<td>iNECTA Produce</td>
<td>iNECTA Produce is a cloud-based electronic software for receiving, packaging, and shipping within the produce industry. Meant for growers, shippers, distributors, terminal markets, and processors, this solution provides quality control, food grading, and field …</td>
<td>$145/mo nth/user</td>
<td>Client OS Mac, Web, Windows</td>
<td>Cloud or On-Premises</td>
<td></td>
</tr>
<tr>
<td>FreshByte Software</td>
<td>Fresh Byte Software is a customer service organization specializing in software for the Wholesale Distribution industry. FreshByte Software provides an inventory and accounting management system built to increase gross profits and minimize costs for…</td>
<td></td>
<td>Web</td>
<td>Cloud Hosted</td>
<td></td>
</tr>
<tr>
<td>Acctivate Screenshot</td>
<td>Acctivate is a powerful, easy-to-use, and affordable inventory and business management software designed for growing small to mid-sized distributors, wholesalers, and online retailers using QuickBooks. Acctivate offers a wealth of features and add-ons…</td>
<td>$4,995 (perpetual license)</td>
<td>Client OS Windows</td>
<td>On-Premises</td>
<td></td>
</tr>
<tr>
<td>Traverse</td>
<td>Traverse is an electronic system from Open Systems, Inc. (OSAS) offering enterprise accounting financial, operations, and sales functionality. Traverse provides comprehensive integration for key business processes, while offering the ability to scale from 5 to…</td>
<td>$100/mo nth/user</td>
<td>Client OS Web, Windows</td>
<td>Cloud or On-Premises</td>
<td></td>
</tr>
<tr>
<td>farmsoft</td>
<td>farmsoft is a fresh produce inventory traceability, quality management, and shipping solution. farmsoft provides easy incoming delivery, precision inventory to prevent waste, quality control, production management, order fulfillment and dispatching</td>
<td></td>
<td>Client OS Mac, Web, Windows, iOS, Android</td>
<td>Cloud or On-Premises</td>
<td></td>
</tr>
<tr>
<td>Software Name</td>
<td>Software Description</td>
<td>Cost</td>
<td>Client OS</td>
<td>Hosting</td>
<td>Industry Feedback</td>
</tr>
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<td>------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Produce Magic Software</td>
<td>Produce Magic Software is a tool for the fresh produce and perishables industry. It provides produce traceability, real-time inventory, warehouse/cooler management, shipper control, and processing tools. Some features of Produce Magic Software are...</td>
<td></td>
<td>Client OS</td>
<td>Cloud or On-Premises</td>
<td></td>
</tr>
<tr>
<td>dProduce Man Software</td>
<td>Quick Order Entry; Unlimited Pricing Flexibility; Lot Tracking / Lot Liquidation; Grower Accounting / Load Accounting; Brokerage / Drop Shipment; Detailed Sales Analysis / Reporting; General Ledger Data Drill; Internet Order Placement Software; and...</td>
<td></td>
<td>Client OS</td>
<td>Cloud or On-Premises</td>
<td></td>
</tr>
<tr>
<td>JustFood ERP</td>
<td>JustFoodERP is one of the best “out of the box” solutions in the industry and focuses on the needs of food processors and distributors and it can be scaled as the business grows. Based on Microsoft Dynamics NAV, JustFoodERP offers deep functionality that...</td>
<td>$170/mo/nt/user</td>
<td>Client OS Web</td>
<td>Cloud Hosted</td>
<td></td>
</tr>
<tr>
<td>LINKFRESH ERP</td>
<td>LINKFRESH ERP is powered by Microsoft Dynamics and provides functionality unique to the produce industry. This includes features such as grower accounting, traceability, consignments, farming, and quality controls.</td>
<td></td>
<td>Client OS</td>
<td>Cloud Hosted</td>
<td></td>
</tr>
<tr>
<td>Grownote</td>
<td>Grownote can help manage all your grow data in one easy to use web-based software. This lets you plan your grow operation for your orchard by improving resource utilization and communication. Radford Software provides leading software products to manage.</td>
<td></td>
<td>Client OS Web</td>
<td>Cloud Hosted</td>
<td></td>
</tr>
<tr>
<td>FreshPack</td>
<td>FreshPack is a complete traceability and inventory management system, allowing fresh produce operators to efficiently track and trace all inputs across their product's supply chain, generate pack and pallet labels, monitor packaging and inventory levels.</td>
<td>$40,000 (perpetual license)</td>
<td>Client OS Windows</td>
<td>Cloud or On-Premises</td>
<td></td>
</tr>
<tr>
<td>Access database</td>
<td>Microsoft Access is a database management system from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software-development tools. It is a member of the Microsoft 365 suite of applications, included in the Professional and higher editions or sold separately.</td>
<td></td>
<td>Microsoft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quick books</td>
<td>QuickBooks is an accounting software package developed and marketed by Intuit. QuickBooks products are geared mainly toward small and medium-sized businesses and offer on-premises accounting applications as well as cloud-based versions that accept business payments, manage, and pay bills, and payroll functions.</td>
<td></td>
<td>Microsoft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipper Office</td>
<td>The Shipper’s Office is designed specifically for fresh fruit and vegetable shippers that market and sell produce for growers. A key feature of The Shipper’s Office is the ability to track inventory received and sold by grower, so that accurate statements may be provided to the growers detailed sales, deductions, and net returns.</td>
<td></td>
<td>Windows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software Name</td>
<td>Software Description</td>
<td>Cost</td>
<td>Client OS</td>
<td>Hosting</td>
<td>Industry Feedback</td>
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<td>----------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Edible</strong></td>
<td>Inventory control and traceability provider offers a full suite of solutions pertaining to food inventory so that your company can maximize efficiency and ensure traceability at every step in the supply chain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grubmarket Wholesaleware software</strong></td>
<td>An all-in-one platform for managing your entire food business in one place: including purchasing, inventory, sales, accounting, and more!</td>
<td></td>
<td></td>
<td></td>
<td>Potential software that some merchants may try</td>
</tr>
<tr>
<td><strong>Franks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Famous</strong></td>
<td>Famous ERP is the core platform of the Famous product portfolio; a complete system of applications and technology designed to manage and automate the integration of information and operational processes across your entire business enterprise.</td>
<td>A quarterly fee of about $2,000</td>
<td></td>
<td>CentOS, Container-Optimized OS, Debian, Fedora CoreOS, Red Hat Enterprises Linux (RHEL), SQL Server, etc.</td>
<td>Software grew on them and those that use is are well settled with it. They are satisfied enough at this point. Some are not satisfied with the software and not opposed to a new software.</td>
</tr>
<tr>
<td><strong>DSI</strong></td>
<td>DSI® Cloud Inventory® powers breakthrough inventory control. Our cloud-based and on-premise inventory management solutions offer real-time, end-to-end visibility at every touchpoint in the supply chain, from the warehouse to the field. Our robust solutions help clients increase productivity, compliance, inventory optimization, and revenue generation.</td>
<td></td>
<td>CentOS, Container-Optimized OS, Debian, Fedora CoreOS, Red Hat Enterprises Linux (RHEL), SQL Server, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Produce Traceability Initiative (PTI)</strong></td>
<td>The Produce Traceability Initiative (PTI) outlines 7 milestones to implementing case-level electronic traceability in the produce industry. On this website you will find the tools and resources you need to implement PTI requirements within your company. If you're just getting started with PTI implementation, check out the GS1 US company prefix pricing information here and take a look at the milestone-specific resources here.</td>
<td></td>
<td>Windows 10 Pro &amp; Enterprise, Windows server 2019, 2016, 2012 R2, Mac OS X 10.12 or newer, Linux</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fishbowl</strong></td>
<td>Fishbowl is a full-scale, inventory-control software designed for companies that are currently using either QuickBooks or spreadsheets to track their inventory. Fishbowl is an affordable solution that solves many of the problems that only expensive solutions solved in the past. Fishbowl integrates with Intuit’s QuickBooks and is the leading inventory control and manufacturing solution, allowing companies to continue to use the QuickBooks software they already know. In short, Fishbowl provides control over many problems faced by small and medium-sized businesses that are trying to survive in today's highly competitive business world.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software Name</td>
<td>Software Description</td>
<td>Cost</td>
<td>Client OS</td>
<td>Hosting</td>
<td>Industry Feedback</td>
</tr>
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</tr>
<tr>
<td>Atma.io</td>
<td>Atma.io provides item-level traceability to each participant in the food supply chain, from source to store and from farm to fork, using Avery Dennison systems and proprietary blockchain technology using Mastercard Provenance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FarmTabs</td>
<td>FarmTabs is downloadable software run on Microsoft Excel that helps small and mid-size farmers manage records for traceability and other farm-related metrics.</td>
<td>Free</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Freshly</td>
<td>Freshly is traceability and batch-tracking software designed for small businesses, including retailers, manufacturers, and distributors.</td>
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<tr>
<td>Heavy Connect</td>
<td>HeavyConnect provides cloud-based digital traceability and compliance documentation solutions, including an intuitive mobile app that allows producers to capture traceability data in the field and seamlessly share it across the supply chain.</td>
<td>Cloud Hosted</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Kezzler</td>
<td>Kezzler uses self-service portals to generate item-level identifiers and associate homogenized datasets at the grower level through simple mobile applications.</td>
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<td></td>
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</tr>
<tr>
<td>Mojix</td>
<td>Mojix uses industry standards to link traceability events for each individual item and/or lot throughout the food supply chain to enable a low-cost and collaborative open data network.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>OpsSmart</td>
<td>OpsSmart provides an industry-proven, cloud-based traceability software solution to meet food safety, recall management, and traceability needs of a complex supply chain.</td>
<td>Cloud Hosted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precise's</td>
<td>Precise’s Traceability Suite delivers efficient end-to-end supply chain tracking to all segments of the food market by utilizing geospatial, machine learning, and Internet of Things (IoT) technologies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roambee/GSM/Wiliot's</td>
<td>Roambee/GSM/Wiliot's solution uses low-cost IoT sensor tags in combination with shipment visibility and verification technologies to provide end-to-end traceability from farm to plate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rfider</td>
<td>Rfider is software-as-a-service that simplifies capturing, securing, and sharing critical event data along supply chains all the way to consumers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TagOne</td>
<td>TagOne uses a role-based data capture framework that updates an open source blockchain platform, leverages industry standards to ensure interoperability, and ensures ease of use and data security</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholechain</td>
<td>Wholechain is a supply chain traceability system that utilizes blockchain technology, in collaboration with Mastercard, to trace products back to their original source.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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APPENDIX 8 - HOW TRACEABILITY AIDS IN RECALL: A TRAINING AIDE

This training aide may be used to help educate others unfamiliar with how a traceability system works.

What is a traceability system?
A produce traceability system encompasses the principles, practices, and standards needed to trace produce throughout the supply chain. In practice, most traceability systems are computerized, and they are implemented through the extensive use of information technology. In principle, a traceability system could be manual and paper based.

What is an effective traceability process?
An effective traceability process, whether electronic or manual, should allow a business to separate its production process into three distinct groups inclusion, exclusion, and dilution. Below is an example of why separating the production process into these distinct groups, prior to a recall, is important:

- **Inclusion**: What do you want to include in a recall? Depending on the risk of the contaminant, the entire list of final product Lot IDs should be held, separated, and tested to determine if they should be included in a potential recall.
- **Exclusion**: What do you want to exclude in a recall? Depending again on the risk of the contaminant, the final products, and/or intermediary ingredients and/or products that have been tested, and products that fall outside the narrowest scope, can be excluded.
- **Dilution**: Which parts of your process line are diluted? Dilution is defined as any point in the distribution process at which the produce is transformed. Depending once again on the risk of the contaminant, final product that contain comingled Lot IDs can be included, or excluded, in a recall, to determine which product lots contain trace amounts of the contaminant. This method can be used to find the source of the contaminant, especially in an automatically collected traceability system.

This separation will allow a business’ management, food safety, and quality staff to pull samples and begin testing suspected or affected products immediately.

While the final decision of which products to include or exclude and which products to recall and destroy will need to be made with your appropriate regulatory agency, a recall can generally be narrowed considerably if you can separate your products accurately and quickly (within a few hours) into the categories above, and third-party lab tests confirm the accuracy of your traceability process.

How does product testing help during a recall?
Traceability product testing can be used as a proactive tool to enhance your company’s quality control system. Small changes to improve quality control product sampling and analytical tests can result in the more accurate identification of the source of the contamination, possibly avoiding the need for a recall entirely. Traceability can also be used as a work-in-progress process to isolate and possibly remove products proactively, long before they become a regulatory issue.

What are the three important tasks to complete during a recall?

If a recall that involves your company occurs, an effective traceability system should allow a business to perform three key tasks:

- **First** - find the source of an issue.
  - Based on the process flow diagrams created, documented records should be able to identify when and where a suspect lot entered the process.
  - Using this methodology, a business or businesses (if the affected product crosses across multiple businesses) should be able to quickly identify which Lot IDs contributed to a final product Lot ID.
• **Second** - find the common point of convergence of all products that are (potentially or actually) unsafe or non-compliant.
  - As soon as more than one final product is identified as potentially contaminated, you will need to identify the common origin (location) or source of the problem quickly.
  - The affected products could be multiple packages or lots in one operation, or different packages across several operations in a business, or different packages across several businesses.
  - The source of the contamination could range from the incoming produce lots, to dirty equipment or packaging materials.

• **Third** - once the source of the contamination is identified, a business should use their process flow diagram to identify the products that contain that common point of convergence across all businesses in the produce supply chain.
  - This final step will significantly help expedite and control the affected product and/or products to be recalled.
  - If the affected product is transferred to another business, ending a business’ ability to further trace the affected product, businesses should notify other businesses in the produce supply chain so that such businesses can perform steps 1-3 listed above.
APPENDIX 9 – BUYER QUESTIONNAIRE TEMPLATE

I. Get a better understanding of your grower.
   □ Do they already have Plain Grower’s GAP in place?
     □ If so, request an overview focusing on the section “Traceability and Recalls and Fresh Produce Food Safety.”
     □ If not, establish their level of familiarity, if any.
   □ Do they keep any production records?
     □ If so, what kind of records?
     □ If not, ask why.
       ▪ i.e., not enough time? Not sure what’s important to record and why? Do they have the proper resources available? Do they record on paper and what do they know, but not record?
       ▪ Notes and reminders can become records, i.e., sold one bushel to the farmers’ market, two loads picked up, etc.

II. Outline grower responsibility and why it’s important to be able to trace crops.
   □ Traceability means that if ever there was a problem with a crop resulting in a recall, you would be able to trace the crop one step forward and one step back. You should know the buyer of your product (unless you sold it directly to the customer). You also should know who you got your inputs from, in case you have to recall a crop, and trace back the problem to your supplier. If you have a traceability program in place, it can help protect you in case of an outbreak that did not originate at your farm. Also, if you have traceability program in place, and your product is properly labelled, your product may remain in the market even if similar products have been recalled due to a food safety issue that is in your general area but not specified. Traceability requirements can be met simply with labeling your crop with information that include farm name, harvest date, numbers such as lot numbers, and any references that will allow you trace your product back.
   □ Offer to help with or provide crop tags or labels.
     □ Offer, when applicable, pre-printed tags or labels initially with the farm name and designated areas for harvest/packing date, product ID, and field designation (however they can do this).
       ▪ i.e., Williams field used, area near southern fence line, etc.
     □ Also, an area for any reference that allows each unique grower to trace their product back.
     □ Finally, an area for customer identification, date, and quantity sold that can be filled out at the field or the point of sale (excluding direct to the customer).
   □ Let your grower know that its ok if they have their own way of doing things. We just need to understand it, not create it.

III. Assessment, Help, and Resources
   □ Establish agreed upon needs both by the grower and the buyer respectfully.
   □ Determine what can be done now.
     □ i.e., crop tags for auction, pre-printed sales sheets to help track field yields for u-pick operations etc. This can help the grower immediately understand you are there to help the overall safety of their farm, not just the crops produced for your company.
   □ Establish specifically agreed upon deficiencies and document them. Provide either templates or guidance in creating their own if that is preferred.
   □ Make it a clear that it is a shared goal to continue to purchase and sell crops with each other and what resources are available to maintain that relationship.
Labeling
- Every sellable container needs to be labeled with the farm name, including city and state, so that so you can be contacted in the event of a food safety problem. The grower will need to provide a direct line of communication or direct contact where they can be reached in an expedient manner in case of an issue (phone number, someone who handles an email, etc.). Without that information, it can be a challenge to contact the grower in case of a food safety concern in a timely manner.
- All produce containers leaving the farm should contain a lot number. Lot numbers should trace back to farm records that identify the crop and type, the field where it was grown, date of harvest, date of packing (if different from harvest), address of packinghouse (if different from farm), and the worker(s) who harvested and packed the product.

Lot Numbers
- The lot number should identify crop information including type (e.g., tomatoes-Roma). If you already have a lot number process in place, adding the crop and type are the next steps to improve your traceability process.
- The lot number should identify the specific field in which the crop was grown. If your farm is small, the easiest way to track this information is to have a detailed field map that you can refer to in relationship to your lot numbers.
- The lot number should identify the harvest and packing date for each crop that is sold by the farm.
- The lot number should identify the workers involved in harvesting and packing. Workers can transmit foodborne pathogens and some pathogens are only transferred by people. In an outbreak, identifying the workers who picked and packed produce may allow for faster identification of the cause of the illness and reduce the impact to your farm. For small farms (10 or fewer workers), your harvest and packing paperwork can identify all workers as part of one crew. For larger farms, it may be beneficial to break harvest and packing into different crews to identify more clearly who was involved in harvesting and packing specific crops on specific days.
- Include the lot number(s) on all invoices to customers. If you direct market, keep track of the dates you harvest and distribute different crops including field numbers, harvest crew, and distribution points. In case of a quality dispute or recall, knowing the lot numbers and as much about the crop as possible will help you respond quickly and prevent unsold products of the same lot from entering the marketplace.

Conduct a Mock Recall
- A mock recall helps you test your traceability system. In a mock recall, you contact one of your buyers and ask about a particular lot number or series of lot numbers. Be sure to mention that you are conducting a mock recall, so they do not think it is a real recall. Your buyer should be able to tell you how much of the lot remains in their possession and how much has been sold to consumers or other buyers. This information should be documented, and your production information should link to the mock recall. If you direct market, your mock recall may include contacting a set of your customers and asking them if they have any product remaining. This could be done through email, phone calls, or paper mail.
- Trace produce identified in the mock recall from your fields to the buyer. Assess weaknesses in your traceability that prevented a successful traceback from happening. Identify what pieces of traceability are missing and implement changes to address these weaknesses.

This process can be seen through a flow chart here:

Discovering the Value of Sales Receipts

Produce businesses, which include but are not limited to small/medium sized businesses; convenience stores; terminal markets; and/or produce auctions, generate sales slips in one of three ways: by the cash register, by the credit card machine, or by hand (written out by the salesperson). Whichever of these three methods you choose to handle your sales transactions, the sales receipt:

- Gives the customer proof that the item was purchased on a particular day at a particular price in your store or facility in case s/he needs to exchange or return the merchandise, and
- Gives the store a receipt that can later be used to enter the transaction into the business’ accounting system. This documented record can also be used for produce traceability purposes, as it identifies, simply, who purchased what products. At the end of the day, the receipts also are used to cash out the cash register to ensure that the cashier has taken in the right amount of cash as compared to the sales receipts/transactions.

To illustrate how much useable information can be generated on a sales receipt, provided below is a sample receipt from a sale at a terminal market:

<table>
<thead>
<tr>
<th>Item</th>
<th>SKU/PLU/GTIN/LOT ID#</th>
<th>Quantity</th>
<th>Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomatoes, box</td>
<td>010203</td>
<td>1</td>
<td>$40</td>
<td>$40.00</td>
</tr>
<tr>
<td>Apples, carton</td>
<td>040506</td>
<td>1</td>
<td>$20</td>
<td>$20.00</td>
</tr>
<tr>
<td>Blueberry, 1 Qt</td>
<td>070809</td>
<td>10</td>
<td>$20</td>
<td>$20.00</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$80.00</strong></td>
</tr>
<tr>
<td><strong>Sales Tax @ 6%</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$4.80</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$84.80</strong></td>
</tr>
</tbody>
</table>

Receipts contain a wealth of information that is collected for your business’ accounting system. A look at a receipt tells you the amount of cash collected, the type of products sold, the quantity of products sold, and how much sales tax was collected.

Unless your company uses some type of computerized system at the point of sale (which is usually the cash register) that is integrated into the business’ accounting system, sales information is collected throughout the day by the cash register and printed out in a summary form at the end of the day. At that point, you enter the details of the sales day in the books.

If you use data collected by a cash register to simply enter into the accounting system the cash received, total sales, and sales tax collected, then efforts to document SKU/Lot numbers can be made by entering this information in a ledger book or similar. Recording this information will assist you in identifying and posting information to consumers regarding produce lots involved in a recall.
In the event that customers cannot be contacted due to cash sales, a strong communications plan is vital to ensuring customers are informed so they can take action to reduce risks. Below are some suggestions to creating a successful communications plan in the event of a recall.

- **Identifying stakeholders**
  Before you start creating your food recall communication plan, you first need to understand and identify who your key stakeholders are. Stakeholders can be internal or external to your food business. Stakeholders can be any person, business, or authority that is impacted by your food recall. Examples of stakeholders can include customers, consumers, employees, suppliers, retailers, certification bodies, regulatory authorities, media, shareholders, insurance companies, or financial lending institutions.

- **Crafting key messages**
  All communications that your business releases during a food recall should provide clear, concise, and easy-to-understand information to any person that may be affected. The recall information that you provide may be different based on the requirements and expectations of the intended stakeholder. The purpose of your key message should be to address the risks and concerns of stakeholders, what the company is doing to address those concerns, and what stakeholders can do to reduce risks such as disposing of product. It is also important to communicate what actions have been taken to ensure the issue that triggered the food recall does not happen again.

- **Classifying communication methods**
  How are you going to communicate with your stakeholders? Will it be via telephone, fax, email, or social media? Again, different stakeholders may require a different communication strategy. Take the time to pre-plan and document communication methods for each stakeholder.

- **Clarifying responsibilities**
  Someone must take leadership and be in charge. Depending on how big your food business is, you may have several people who are responsible for different departments or different parts of your recall plan. For example, customer service, procurement, compliance management, or finance/accounting may all of individuals who are part of ensuring the recall plan and communication are properly implemented. Allocate a position and identify the person who will be responsible for communicating with each of the key stakeholders.

- **Media and Advisory Statements**
  Pre-written media and advisory templates are a great preparation tool. The purpose of these statements is to explain what has happened, what impact it might have on key stakeholders, and what people should do to reduce the risks. Advisories are an opportunity to show stakeholders that you are acting quickly and responsibly. Having pre-developed templates will not only save you time during a recall but also will provide consistency in your key messaging.

- **Media Spokesperson**
  Your food recall communication plan needs to identify a media spokesperson. The role of the media spokesperson is to communicate the key messages as agreed on by the organization. They will also need to answer questions truthfully and honestly, even if the answers are known. It is important that this representative has appropriate media training and can handle the pressure of interviews and media scrutiny.

- **Regulatory Compliance**
  Depending on where you are located and where your customer is based, there may be additional regulatory communication requirements (state departments of agriculture and/or health and the FDA) due to the product possibly crossing one or multiple state lines. These requirements can include recall notifications, varying reporting timeframes, and the use of mandatory media recall templates. Your recall communication plan should clearly state who your regulatory contacts are and what templates and procedures should be followed during a recall.

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22 https://haccpmentor.com/food-recall-communication-plan/?nowpocket=1
APPENDIX 13: GS1 TRACEABILITY

“GS1-enabled traceability solutions provide the best path to interoperability, protecting companies' investments, and scaling up traceability. Greater levels of digitalization, speed, and data accuracy become possible. Each trading partner in the chain becomes free to choose the solution on the market that best meets its specific needs.”

“GS1 provides the global and common language for traceability solutions and the ecosystem for its implementation. GS1 makes the industry vision operational and scalable through collaborations and community development, registries about products and places, capacity building and local implementation services in more than 100 countries.”

GS1 Traceability Standards

“GS1 Global Traceability Standard (GTS2) introduces two key concepts for interoperable traceability: 1) Critical Tracking Events (CTEs), these are the actual events, such as receiving, packing, shipping, transporting, that occur to the traceable object during its lifecycle, and 2) Key Data Elements (KDEs), these are the elements of data that describe the actual instances of the CTEs.”

“GS1 identification standards Global Trade Item Number® (GTIN) and Global Location Number (GLN) uniquely identify the objects that are moving throughout supply chains and the locations to which and from which they travel. Identification keys enable the connection of physical and information flows within a trading partner’s processes as well as across different trading partners’ processes.”

“Barcodes and EPC/RFID, data capture standards, along with data sharing standards the Global Data Synchronization Network® and EPCIS (Electronic Product Code Information Services) enable automated processing and sharing of information between and across trading partners. EPCIS is a critical component for traceability systems. EPCIS enables trading partners to share information about the physical movement and status of products across supply chains.”

“GS1 provides sector-specific traceability standards that enable traceability across and within industry sectors. Explore our standards for traceability in Healthcare, Retail and Rail. Interested in assessing your current traceability capabilities? The GS1 Global Traceability Compliance Criteria standard enables companies to evaluate their traceability control points and implement best practices.”

GS1: Why is traceability the answer to efficiency and visibility in your supply chain and beyond? https://www.youtube.com/watch?v=g8qmNzvVDPw&t=30s

Example of GS1 Barcode Labeling:

[Image of GS1 Barcode Labeling]

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23 [https://www.gs1.org/standards/traceability](https://www.gs1.org/standards/traceability)
APPENDIX 14: SHOPPER CARDS AND TRACEABILITY

Shopper cards or loyalty cards are increasingly being used by convenience stores, grocery stores, and retail chains to track consumer shopping preferences and to offer targeted promotions based on a consumer’s shopping history. Shopper card data is also particularly useful to obtain precise and reliable information on the traceability of consumed food\(^\text{24}\) and the data collected is increasingly being used by public health officials, as a tool to investigate the probable cause of a foodborne illness outbreak more quickly in the US.\(^\text{25}\)

Generally, during a foodborne illness outbreak investigation, public health investigators will interview illness cases to determine one or more food item(s) of interest. Where shopper card information is available, ill consumers can provide their shopper card information and permission to obtain their shopping history. Investigators may contact the retailer seeking shopping history records for foods of interest for a specific date range, depending on the nature of the illness and/or shelf life of the foods. To expedite this process, retailers may consider incorporating language into their shopper card application form/agreements obtaining advance permission to share shopping history automatically with public health investigators, in the event of a foodborne illness outbreak investigation.

Recently, the FDA shared, through their New Era of Smarter Food Safety initiate regarding Tech-Enabled Traceability, that while “technology already assists outbreak response: whole genome sequencing allows us to identify illness clusters when they are smaller, and public health agencies increasingly rely on electronic data in outbreak investigations—e.g., shopper card data; the bar code from a food package; supplier-customer data; purchase orders; bills of lading for shipments of goods,” without a system that more comprehensively tracks all of these data elements, the quality and compatibility of the data that is collected is highly variable.\(^\text{26}\)

As such, we encourage New York’s produce industry to explore the use of shopper cards or loyalty cards as a possible mechanism to grow their business and offer targeted promotional discounts to their customers, while at the same time giving the ability to present the data collected to regulatory officials to determine whether the product implicated was bought or sold by your company and when.

Useful information to collect from customers when they sign up for a shopper or loyalty card could include:

- name,
- address,
- email,
- telephone number, and
- consent to share shopper history in the event of a foodborne illness outbreak investigation.

By tapping into existing or new technologies and integrating data already collected, we can more efficiently work together to trace the origin of a contaminated food to its source in a more expeditious manner, limiting exposure to other consumers and shortening the lifecycle of the outbreak.


\(^\text{25}\) https://www.afdo.org/resources/purchase-history/

\(^\text{26}\) NEW ERA OF SMARTER FOOD SAFETY FDA’s Blueprint for the Future https://www.fda.gov/media/139868/download
APPENDIX 15 - RECORD RETENTION

Your traceability records should be retained for at least the same duration as your other regulatory records. See below for examples of such durations.

Department of Agriculture and Markets:
Produce Safety Record Retention Requirements:
- The Produce Safety Rule (PSR) 21 CFR 112 requires farms to keep records for two years after the record is created, except for qualified exemption supporting documentation records, which must be retained as long as necessary to support the farm’s status during the applicable calendar year.

Food Processing Record Retention Requirements:
- Low Acid Canned Food (LACF) record retention:
  - Copies of all records provided for in this part, except those required under § 113.83 establishing scheduled processes, shall be retained at the processing plant for a period of not less than one year from the date of manufacture, and at the processing plant or other reasonably accessible location for an additional two years. If, during the first year of the three-year record retention period, the processing plant is closed for a prolonged period between seasonal packs, the records may be transferred to some other reasonably accessible location at the end of the seasonal pack.

- Acidified Food record retention:
  - Copies of all records provided for in 21 CFR 114.100 paragraphs (b), (c), and (d) shall be retained at the processing plant or other reasonably accessible location for a period of three years from the date of manufacture.

- Preventive Controls (PC) for Human Foods record retention:
  - All records required by this 21 CFR 117, must be retained at the plant or facility for at least two years after the date they were prepared.
  - Additionally, records that a facility relies on during the three-year period preceding the applicable calendar year to support its status as a qualified facility must be retained at the facility as long as necessary to support the status of a facility as a qualified facility during the applicable calendar year.

Seafood HACCP record retention:
- (b) Record retention. (1) All records required by this part shall be retained at the processing facility or importer’s place of business in the United States for at least 1 year after the date they were prepared in the case of refrigerated products and for at least 2 years after the date they were prepared in the case of frozen, preserved, or shelf-stable products. (2) Records that relate to the general adequacy of equipment or processes being used by a processor, including results of scientific studies and evaluations, shall be retained at the processing facility or the importer’s place of business in the US for at least 2 years after their applicability to the product being produced at the facility

Juice HACCP record retention:
- (d) Record retention. (1) All records required by this part shall be retained at the processing facility or at the importer's place of business in the United States for, in the case of perishable or refrigerated juices, at least one year after the date that such products were prepared, and for, in the case of frozen, preserved, or shelf stable products, two years or the shelf life of the product, whichever is greater, after the date that the products were prepared.

Grocery Store Record Retention Requirements:
- At retail, shellfish tags must be retained for 90 days; roast beef and chicken records must be retained for 60 days. Retail production records should be maintained for 60-90 days, per Department policy.
Department of Labor
OSHA Record Retention Requirements27

OSHA 300 Log of Work-Related Fatalities, Injuries, and Illnesses Document Retention
- Employers must retain the OSHA 300 Log, the annual summary, and the OSHA Incident Report forms for five years past the end of the calendar year attributed to this documentation. To be precise, the OSHA 300 Log is required to be retained on an “establishment basis” as governed by NAICS codes.

General Duty Clause Document Retention
- There are no specific standards or retention requirements for “recognized hazards” covered under the General Duty Clause. This doesn’t insinuate that these documents should be neglected. The best practice for General Duty Clause document retention is to retain any training records dealing with “recognized hazards” for the duration of employment, including the written policy, training records, and disciplinary documents for policy violations.
- Additionally, there are certain documents dealing with General Duty Clause obligations that may be classified as exposure or medical recordkeeping requirements. Be diligent when building your records retention policy to avoid any potential pitfalls, especially when it comes to OSHA records retention requirements.

Lockout/Tagout (LOTO) Document Retention
- The OSHA Lockout/Tagout (LOTO) standard, also referred to as “Control of Hazardous Energy,” mandates that employers maintain logs verifying that periodic inspections by authorized employees are being performed at least once per year. LOTO document retention guidelines stipulate that these logs be maintained for a minimum of one year or until a new log is validated and certification is issued. LOTO training records for individual employees should be saved for the length of employment.

Personal Protective Equipment (PPE) Document Retention
- There are several written certifications regarding hazard assessment and employee training that must be retained for the duration of a worker’s employment. PPE records for individual employees should also be retained until the employee is no longer employed.

Occupational Noise Exposure Document Retention
- OSHA recommends that employers retain noise exposure measurement records for a minimum of two years and audiometric test records for the duration of employment.

Bloodborne Pathogens Document Retention
- OSHA employs the “duration of employment plus 30 years” policy for employee exposure records. Training records must be retained for far less; only three years from the date of the training. Still, many employers choose to retain these records until the employee is no longer working for their company.

Respiratory Document Retention
- Similarly, employers must retain records pertaining to employee medical evaluations for 30 years past the final date of employment. Employee results from the most recent fit test should also be recorded and maintained until the results of the next test have been collected.

Hazard Communication Document Retention
- According to OSHA, “chemical manufacturers and importers are required to evaluate the hazards of the chemicals they produce or import and prepare labels and safety data sheets to convey the hazard information to their downstream customers.”
- Furthermore, they require all employers with hazardous chemicals present at their workplaces to label them accordingly and update safety data sheets for their exposed workers. Each safety data sheet (SDS) must be retained for 30 years beyond the duration of employment for all exposed employees. Employers must also retain copies of all SDSs for every chemical currently being used.

27 https://www.intellichief.com/osha-record-retention-requirements/#:%3A:text=OSHA%E2%80%99s%20electrical%20safety%20standards%20contain%20specific%20record,documentation%20until%20the%20hazard%20is%20no%20longer%20present.
Process Safety Management (PSM) Document Retention
- OSHA requires process hazard analyses (PHAs), related employee records, and verification records to be retained for the duration of the covered process or the employee's tenure. Process safety information (PSI) documents used for developing, maintaining, auditing, and managing processes should also be retained for as long as the process is being used.
- Finally, employers should save incident investigations covered by the PSM standard for at least five years as well as the two most recent compliance audit reports. Failure to comply with these retention policies could result in a citation, fine, or penalty.

Emergency Action Plans (EAPs) Document Retention
- OSHA has not mandated time-specific document retention requirements for emergency action plans (EAPs). However, they do require that employers develop and maintain a written EAP for review during inspection. Small teams of fewer than 10 employees do not need to maintain a written EAP.

Permit-Required Confined Spaces Document Retention
- Employers are required to retain canceled entry permits for a minimum of one year. They should also be reviewed within one year following each entry. In regard to employee confined space training records, it is recommended that employers retain these records for the duration of employment.

Electrical Safety Document Retention
- OSHA’s electrical safety standards contain no specific record retention requirements. It is still recommended that employers retain these records for the length of employment. When conducting an electrical exposure hazard survey, the employer should retain documentation until the hazard is no longer present.

Powered Industrial Trucks Document Retention
- The powered industrial truck standard contains no specific retention requirements for initial training certificates or those issued for three years following a near miss. While there is no specific mandate, these training certifications should be retained for the duration of employment for each employee to protect against liability.

Department of Tax and Finance
Tax Filling Record Retention Requirements
- As a New York State business owner, you are required to keep records that allow you to prepare complete and accurate tax returns for your business. You must also keep documents, such as canceled checks, receipts, cash register tapes, purchase orders, and other sales records to support your business records. Generally, you must keep records and supporting documents for at least three years after you file a return.28

28 https://www.tax.ny.gov/bus/doingbus/recordkeeping.htm
APPENDIX 16: EXAMPLES OF PRODUCE SAFETY SAMPLE LABELS/SIGNS TO EDUCATE CONSUMERS ON SAFE PRODUCE HANDLING PRACTICES

The following signs or labels could be posted at the point of sale or on the produce itself. They could also be provided to the consumer in a variety of other ways, such as a tip via email if they purchase their produce online, on a weekly flyer, or the back of their receipt, to provide direct education to the consumer on the ways to safely handle produce prior to consumption.

Safe Handling Instructions
This product was grown with Good Agricultural Practices. To keep produce safe, follow these handling instructions.

✓ Rinse all produce with cool running water before use

✓ Keep produce away from raw meats during shopping, transport, in the refrigerator, and on cutting boards

✓ Store all cut, packaged, or cold-tolerant produce in a clean refrigerator at a temperature of 40° F or below

Safe Handling Instructions
This product was grown using food safety practices. To keep produce safe, follow these handling instructions.

✓ Rinse all produce with cool running water before use

✓ Keep produce away from raw meats during shopping, transport, in the refrigerator, and on cutting boards

✓ Store all cut, packaged, or cold-tolerant produce in a clean refrigerator at a temperature of 40° F or below
For companies who have been certified by the [New York State Grown and Certified Program](#), this type of label/sign could be used instead:

**Safe Handling Instructions**

This product was audited against strict food safety practices and environmental stewardship. To keep produce safe, follow these handling instructions.

- ✓ Rinse all produce with cool running water before use
- ✓ Keep produce away from raw meats during shopping, transport, in the refrigerator, and on cutting boards
- ✓ Store all cut, packaged, or cold-tolerant produce in a clean refrigerator at a temperature of 40° F or below