Transportation Overview

Produce can be transported from the field to the packing area or from the farm to market. No matter where the produce is going, it needs to be transported in a way that reduces the risks of contamination. Keeping produce safe during transportation is important and often the last step in delivering safe produce to the customer.¹

Vehicle cleanliness and worker training that encourages good handling practices are two areas where you can focus efforts to reduce risks. Keeping your delivery vehicle free of dirt, debris, and pets will reduce contamination risks and send the message that you care about all aspects of food safety from the field to the final customer. Maintaining the cold chain with refrigeration may also be important to some farms. If transportation vehicles have refrigeration units, they should be monitored and properly maintained to make sure they hold produce at the appropriate temperature. Even if you do not have a vehicle with an automatic temperature monitor and refrigeration unit, you can still apply practices that keep the vehicle at an optimal temperature to protect the produce during transport.² Properly cleaned, packed, and temperature-controlled cargo areas will help minimize produce contamination, loss, and damage in transit.

Workers should understand how to prevent damage to produce during loading as well as ways to reduce contamination risks. In addition, inspecting all vehicles to make sure that they are clean before loading and not stacking dirty boxes or bins on top of clean ones will help reduce contamination risks.

Growers should develop a transportation management plan focused on produce safety. A farm transportation policy that includes requirements for all transportation vehicles including cleanliness and temperature expectations. Decisions about proper temperatures for cooling and holding produce should be science-based and follow recommendations of allowable temperature range depending on the produce being delivered.³ This policy could include contract requirements for hired delivery vehicles including the documentation of prior loads to ensure they have not carried cargo that could contaminate the fresh produce as well as the requirement to have functioning refrigeration units on the truck.

- A checklist that should be completed prior to loading produce onto any vehicle. This checklist could include steps for monitoring cleanliness as well as temperature.
- A maintenance schedule for each vehicle to prevent unintended roadway breakdowns and ensure they are kept clean.
- Train workers on the vehicle SOPs, e.g., for cleaning vehicles and monitoring cleanliness, and SOPs for proper loading of vehicles.

A worker training program that informs workers how to minimize risks during the loading process as well as how to monitor truck cleanliness and temperature (if required) prior to loading. If the farm owns the transportation vehicles, worker training may also need to include how to properly clean the vehicles when they are dirty and what to do if the truck’s refrigeration is not working properly.

- A checklist that should be completed prior to loading produce onto any vehicle. This checklist could include steps for monitoring cleanliness as well as temperature.
- A maintenance schedule for each vehicle to prevent unintended roadway breakdowns and ensure they are kept clean.⁴
The information in the template food safety plan, SOPs, and recordkeeping logs are examples you can use. They are not intended to be used directly. Tailor each to fit your farm operation and practices. These documents are guidance for risk reduction and for educational use only. These documents are not regulatory and are not intended to be used as audit metrics. These documents are subject to change without notice based on the best available science.
**Transportation Decision Tree**

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1. **Do you cover your commodity during transport?**
   - **No**

   Produce should be covered or otherwise protected as it is moved from the field to the packing area or to the market. Using covered boxes, other covering, or an enclosed vehicle will help protect produce from being contaminated by dirt, dust, bird droppings, and other environmental sources of contamination.

2. **Do you have a policy to ensure vehicles that transport produce have not been previously used to haul anything other than fresh produce or that those vehicles have been cleaned and sanitized (if possible) prior to loading and transporting produce?**
   - **No**

   Fresh produce should not be transported in vehicles that have been used to haul manure, soil, compost, animals (including pets), animal products, or hazardous materials as these present a food safety risk. If vehicles, such as wagons and pick-up trucks, are used for multiple purposes on the farm, then a policy should be put in place to ensure they are cleaned before hauling fresh produce. See the SOP for *Cleaning Produce Transport Vehicles* and document on the logsheet.
Transportation Decision Tree

Do you inspect all transportation vehicles prior to loading fresh produce to ensure they are clean and will not serve as a source of contamination to the commodity?  

Yes

All vehicles should be inspected before loading produce to ensure there is no dirt, debris, or other evidence of contamination that may pose a food safety hazard. A written SOP should be developed for cleaning transportation vehicles (if you do this yourself) that includes removing debris, cleaning, and sanitizing (if possible). If the truck is contracted, check it before loading. Look at the outside and inside of the truck. Use your eyes and nose as you inspect the truck. Look for evidence of animals, including pets and pests. Make sure the truck is free of trash, debris and odors. Ask the driver about previous loads that have been carried in the vehicle and when the vehicle was last cleaned.  

A designated worker should sign or initial the completed checklist or inspection report, to verify cleanliness and appropriate temperature (if applicable).

No

Do you have a written policy for precooling produce as needed, maintaining specific temperatures and a plan for monitoring the temperature during transportation?

Yes

It may be that the fresh produce you are shipping is going a short distance so temperature maintenance is not as important as for longer transit times. However, if you have a contract with a transportation company and you require refrigeration, be sure to include your specified temperature range for the produce that will be transported. Check and record the trailer temperature before loading produce to ensure that the cargo area has been properly pre-cooled. Pre-cooling transportation vehicles is an important step in the cold chain maintenance, because it will help prevent heat build-up and deterioration in quality and safety of the produce.

NOTE: These are best practices. If you do not have a refrigerated vehicle, make every effort to ensure that the vehicle and produce stay as cool as possible. Practical efforts may include keeping the vehicle under shade (but not under trees) or inside a cool building.

No
If produce requires refrigeration, do you regularly inspect and service refrigeration equipment on vehicles to ensure they are working properly and able to cool and hold produce at the desired temperature?

Yes

Refrigeration equipment must be monitored and repaired as necessary to ensure that proper temperatures can be maintained throughout transportation. Monitor to prevent condensation of refrigeration units from dripping onto produce. Temperatures can be recorded by using handheld thermometers or thermostatic devices on the unit and recorded on a maintenance log. Specify expectations and requirements for refrigeration in contracts if you hire others to transport your produce.

No

Do you train your workers to load and unload produce to minimize damage, prevent contamination, and maintain quality?

Yes

Training workers to properly load and unload produce will help minimize damage and prevent contamination of produce. Produce should be handled carefully so as not to bruise or injure it. Aside from significant deterioration in quality and consumer acceptance, bruises and cuts on produce can foster the growth of harmful pathogens if they are present. Containers, pallets, and bins should not be stacked on top of each other unless care has been taken to ensure produce on the bottom will not be injured and is protected from contamination from produce or containers stacked above. If a refrigerated vehicle is needed, workers should be trained to load containers to allow proper airflow and not overload the vehicle beyond its cooling capacity.

No
Transportation Decision Tree

Do you keep records of transportation practices?

No

Yes

Records should be kept of all transportation practices that reduce produce safety risks.

- Inspecting vehicles prior to loading
- Maintaining vehicles
- Pre-cooling and cold chain maintenance practices (if applicable)

See Transportation Log and Refrigerated Truck Loading Log.

Finished
Sample SOP: Cleaning Produce Transport Vehicles

Revision: 2.0
Date: 8/4/2014

1—Purpose
Describes the process for cleaning vans that carry fresh produce.

2—Scope
Applies to cleaning vans only. It does not cover any other farm produce delivery vehicles.

3—Responsibilities
The farm owner is responsible for determining the frequency of vehicle cleaning during the produce delivery season and making sure the vehicles are clean before each loading. The farm owner may assign the task to others, but the farm owner is responsible for making sure workers are trained to properly clean the van. Workers assigned to clean vehicles are responsible for following cleaning SOPs and documenting the cleaning was done. Workers should notify their supervisor or farm owner if they have any questions or notice safety issues they do not know how to address.

4—Materials
- Broom
- Water source with hose or pressure washer
- Air compressor and hose
- Detergent [name]
- Bucket for mixing detergent
- Tools for cleaning (brushes, cloths, etc.)

5—Procedures
1. Select area for cleaning vehicles, making sure run-off will not contaminate fields, packing area, or environment. Cleaning should be done in designated areas only, such as:
   a. Designated area on the farm
   b. Commercial wash bay
2. Open doors of van. Remove any personal property and items that should not get wet. Sweep out any debris.
3. Blow out cab with air hose.
4. Clean floors and behind the seat with a broom or brush to remove any debris before using water.
5. Prepare bucket of detergent by mixing [enter amount of detergent here] and [enter amount of water here] water.
6. Wipe down interior surfaces with a clean cloth and a detergent-water mixture that you have mixed in a bucket.

7. Turn on water. Use hose and water to spray the inside of van. Make sure to spray ceiling and walls as well as floor. Give special attention to cracks, crevices, and areas near door openings and pockets. All cleaning steps should follow a top-down or “top first, bottom last” approach.

8. Scrub inside of van with clean cloths and/or scrub brushes using the detergent you mixed in previous step. Make sure to scrub ceiling and walls. Pay special attention to cracks and crevices near door openings.

9. Use hose and water to rinse the inside of van. Make sure to spray the ceiling, walls and floor. Give special attention to cracks and crevices and areas near door openings.

10. Allow the vehicle to air dry.

11. Shut the doors and/or take other steps, as necessary, to keep your clean vehicle clean.

12. When dirty, wash the outside of the van using the same method of rinse, scrub, rinse using water and detergent as you did on the inside. This is to avoid transferring dirt from the outside of the vehicle to the inside products during delivery.

13. Document and initial vehicle washing on [enter record keeping system here, e.g., log sheet]
Sample Refrigerated Truck Loading Log

Note: This checklist can be adapted for a non-refrigerated vehicle. Delete the non-relevant checklist items.

Preloading

☐ The vehicle is clean and in good condition.
☐ Refrigeration unit is operating properly and at [enter temperature range here]*.
☐ The trailer or container is pre-cooled (or pre-warmed).
☐ Refrigeration air chutes or ducts are properly installed and in good repair.
☐ There is no evidence of insect or rodent infestation.
☐ There are no off odors that might indicate contamination of the vehicle.
☐ Door seals are in good condition and seal tightly when closed.
☐ Walls are free of cracks or holes.
☐ Front bulkhead is installed.
☐ Floor drains are open.
☐ Floor grooves are free of debris.
☐ Inside length, height, and width is adequate for the load.
☐ Load locks or other devices are available to secure load.

*Thermometers and thermostats need to be calibrated periodically to ensure proper function. Develop a schedule for calibrating necessary equipment.

Loading

☐ Workers have received health and hygiene training and follow the farm’s policies.
☐ Workers loading vehicle have been trained on how to avoid damaging fresh produce while loading.
☐ Hand-stacked loads use an airflow loading pattern with a header stack and lengthwise air channels. (Reference: Ashby)
☐ Top- and bottom-air delivery vehicles are loaded with offset-by-layers pattern or center-load unit; loading tight against flat walls is avoided.
☐ Allow at least 4 inches of space between end of load and rear doors for return air.
☐ Use pallets on floor if floor channels or ducts are less than 2 1/4 inches (6 cm) deep.
☐ Secure unit loads with one or more of the following: air bags, bracing, shrink film, netting, or strapping.
☐ Secure hand-stacked loads at rear with wood gates, load bars, or other devices.
Unloading

☐ The Bill of Lading (BOL) matches what is in the vehicle.

☐ The product and the pallets on which the product was shipped are in good physical condition.

☐ For refrigerated deliveries, check that the products meet established specifications for delivery—specifically temperature.

☐ For a refrigerated load, the load temperature is maintained in all four corners, especially at the backdoor.

☐ Unload boxes or pallets onto carts, dollies, or via forklift to designated location. Avoid placing produce boxes directly on the ground.

☐ Document delivery on shipping log sheet.

# Sample Transportation Log

<table>
<thead>
<tr>
<th>Date</th>
<th>Inspected?</th>
<th>Temp</th>
<th>Record produce safety hazards and corrective actions</th>
<th>Quantity</th>
<th>Produce Code</th>
<th>Vehicle ID and driver</th>
<th>Destination</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/24/14</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Co222.13, Pe223.A2, Le223-G1</td>
<td>Truck2, Dave</td>
<td>LMNO Distributors QRS Coop</td>
<td>SM</td>
</tr>
<tr>
<td>9/25/14</td>
<td>X</td>
<td></td>
<td>Truck cleaned to remove plant debris from previous day, swept and loaded.</td>
<td>30 cases</td>
<td>To224-A1</td>
<td>Truck2, Dave</td>
<td>Farmers Market</td>
<td>LR</td>
</tr>
</tbody>
</table>

1. Inspect for pests, odors, damage, refrigeration not working, other materials (garbage, manure, oil), general maintenance.

2. Actions include refusing to load produce into vehicle, or wash/clean/sanitize/repair or other
Template Language for Transportation Section of a Farm Food Safety Plan

Risk Assessment
Transportation vehicles can contaminate fresh produce if the vehicles are contaminated from previous loads or ineffective cleaning. To reduce risks, we have developed a transportation policy for vehicles used to transport produce on the farm and to customers.

Actions to Reduce Risks
All vehicles used to transport produce are inspected for off odors and visually inspected for signs of unsanitary conditions prior to loading. If a vehicle is found to be unclean, the vehicle is cleaned prior to use. All inspections of vehicles prior to loading and any corrective actions are documented on the Transportation Log.

Any vehicles contracted to carry fresh produce are required to document when their truck was last cleaned and notify the farm if they have carried anything that could represent a risk to fresh produce such as chemicals, manure, or raw animal products.

Our farm pre-cools produce as needed and maintains a cold chain. All vehicles are checked to ensure that they are at [state temperature here] prior to loading. We use temperature data loggers on all loads to document transportation temperatures. Temperature logs are kept on file [add location here] for two years.

Produce is loaded carefully so that risk of damage will be minimized. Only workers who are trained in loading produce out of the storage cooler and onto trucks are allowed to do so. Worker training logs are kept [add location here].

All records, including invoices and manifests, are kept on file for two years.