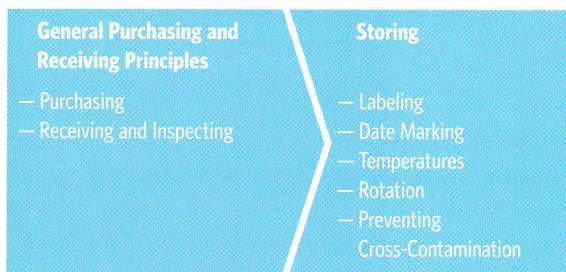




# chapter 5

## The Flow of Food: Purchasing, Receiving, and Storage





## Fatal Outbreak Linked to Incorrect Storage Practices

Two deaths and 68 cases of severe illness were attributed to an *E. coli* outbreak at a local family operation in the Midwest. An investigation revealed that several 10-pound packages of raw ground beef were incorrectly stored on the top shelf in a walk-in cooler. Authorities determined that the ground beef dripped onto fresh rolls and cartons of chocolate milk that were stored on the shelf below. Guests who had eaten the rolls or were served the cartons of chocolate milk got sick. The operation, which had voluntarily closed for the investigation, never reopened.

### You Can Prevent This

In the story above, incorrect storage practices led to contaminated food. Unfortunately, the problem was not found in time to prevent the tragedy.

In this chapter, you will learn about storage practices that can help prevent this type of situation. You will also learn about practices that can be put in place to help ensure the food you receive is safe.

- Purchasing food from approved, reputable suppliers
- Using criteria to accept or reject food during receiving
- Labeling and dating food
- Storing food and nonfood items to prevent time-temperature abuse and contamination

**General Purchasing and Receiving Principles**

- Purchasing
- Receiving and Inspecting

**Storing**

- Labeling
- Date Marking
- Temperatures
- Rotation
- Preventing Cross-Contamination

**General Purchasing and Receiving Principles**

You can't make unsafe food safe. So, you must make sure you bring only safe food into your operation. Purchasing food from approved, reputable suppliers, and following good receiving procedures will help to ensure the safety and quality of the food your operation uses.

**Purchasing**

Before you accept any deliveries, you must make sure that the food you purchase is safe. Follow these guidelines.

**Approved, reputable suppliers** Food must be purchased from approved, reputable suppliers. These suppliers have been inspected and can show you an inspection report. They also meet all applicable local, state, and federal laws. This applies to all suppliers in the supply chain. Your operation's chain can include growers (as shown in the photo at left), shippers, packers, manufacturers, distributors (trucking fleets and warehouses), and local markets.

Develop a relationship with your suppliers, and get to know their food safety practices. Consider reviewing their most recent inspection reports. These reports can be from the U.S. Department of Agriculture (USDA), the Food and Drug Administration (FDA), or a third-party inspector. They should be based on Good Manufacturing Practices (GMP) or Good Agricultural Practices (GAP). Make sure the inspection report reviews the following areas.

- Receiving and storage
- Processing
- Shipping
- Cleaning and sanitizing
- Personal hygiene
- Staff training
- Recall program
- HACCP program or other food safety system

Many operations establish supplier lists based on their company specifications, standards, and procedures. However, only approved suppliers should be included on these lists.

**Deliveries** Suppliers must deliver food when staff has enough time to do inspections. Schedule deliveries at a time when they can be correctly received.



Photo courtesy of Boskovich Farms, Inc.





### Receiving and Inspecting

You must take steps to ensure the receiving and inspection process is smooth and safe. **1** Make specific staff responsible for receiving. Train them to follow food safety guidelines. In the photo at left, a manager is training a food handler on inspecting produce. **2** Provide staff with the tools they need, including purchase orders, thermometers, and scales. Then make sure enough trained staff are available to receive and inspect food items promptly. This starts by visually inspecting delivery trucks for signs of contamination. **3** It continues with visually inspecting the food items and checking to make sure they have been received at the correct temperature. **4** Once inspected, food items must be stored as quickly as possible in the correct areas. This is especially true for refrigerated and frozen items.

### Key Drop Deliveries

Some foodservice operations receive food after-hours when they are closed for business. This is often referred to as a key drop delivery. The supplier is given a key or other access to the operation to make the delivery. Products are then placed in coolers, freezers, and dry-storage areas. The delivery must be inspected once you arrive at the operation and must meet the following conditions.

- It is from an approved source.
- It was placed in the correct storage location to maintain the required temperature.
- It was protected from contamination in storage.
- It has not been contaminated.
- It is honestly presented.

### Rejecting Items

If you must reject an item, set it aside from the items you are accepting. Then tell the delivery person exactly what's wrong with the rejected item. Make sure you get a signed adjustment or credit slip before giving the item back to the delivery person. Finally, log the incident on the invoice or the receiving document.

Occasionally, you may be able to recondition and use items that would have been rejected. For example, a shipment of cans with contaminated surfaces may be cleaned and sanitized, allowing them to be used. However, the same cans may not be reconditioned if they are damaged.



## Recalls

Food items you have received may sometimes be recalled by the manufacturer. This may happen when food contamination is confirmed or suspected. It can also occur when items have been mislabeled or misbranded. Often food is recalled when food allergens have not been identified on the label. Most vendors will notify you of the recall. However, you should also monitor recall notifications made by the FDA and the USDA. Follow these guidelines when notified of a recall.

- Identify the recalled food items by matching information from the recall notice to the item. This may include the manufacturer's ID, the time the item was manufactured, and the item's use-by date.
- Remove the item from inventory, and place it in a secure and appropriate location. That may be a cooler or dry-storage area. The recalled item must be stored separately from food, utensils, equipment, linens, and single-use items.
- Label the item in a way that will prevent it from being placed back in inventory. Some operations do this by including a Do Not Use and Do Not Discard label on recalled food items. Inform staff not to use the product.
- Refer to the vendor's notification or recall notice for what to do with the item. For example, you might be instructed to throw it out or return it to the vendor.

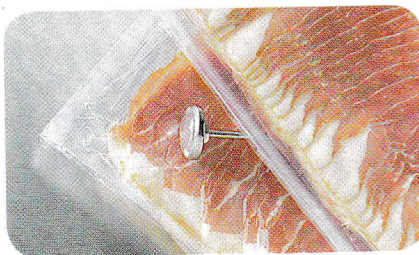
## Temperature

Use thermometers to check food temperatures during receiving. The following examples explain how to check the temperatures of various types of food.

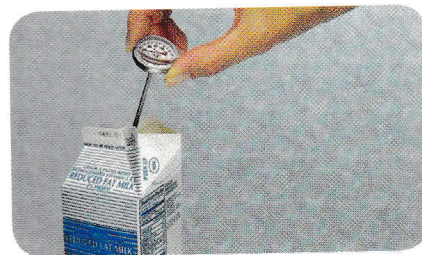
### Checking the Temperature of Various Types of Food



**Meat, poultry, and fish** Insert the thermometer stem or probe directly into the thickest part of the food. The center is usually the thickest part.

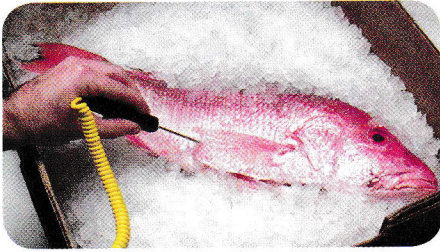


**ROP food (MAP, vacuum-packed, and sous vide food)** Insert the thermometer stem or probe between two packages. If the package allows, fold it around the thermometer stem or probe. Be careful **NOT** to puncture the package.



**Other packaged food** Open the package and insert the thermometer stem or probe into the food. The sensing area must be fully immersed in the food. The stem or probe must **NOT** touch the package.





Deliveries should also meet the following temperature criteria.

**Cold food** Receive cold TCS food, such as the fish in the photo at left, at 41°F (5°C) or lower, unless otherwise specified.

**Live shellfish** Receive oysters, mussels, clams, and scallops at an air temperature of 45°F (7°C) and an internal temperature no greater than 50°F (10°C). Once received, the shellfish must be cooled to 41°F (5°C) or lower in four hours.

**Shucked shellfish** Receive at 45°F (7°C) or lower. Cool the shellfish to 41°F (5°C) or lower in four hours.

**Milk** Receive at 45°F (7°C) or lower. Cool the milk to 41°F (5°C) or lower in four hours.

**Shell eggs** Receive at an air temperature of 45°F (7°C) or lower.

**Hot food** Receive hot TCS food at 135°F (57°C) or higher.

**Frozen food** Frozen food should be frozen solid when received.

Reject frozen food for the following reasons.

- Fluids or water stains appear in case bottoms or on packaging.
- There are ice crystals or frozen liquids on the food or the packaging. This may be evidence of thawing and refreezing, which shows the food has been time-temperature abused. The food in the photo at left shows evidence of thawing and refreezing.



### Packaging

Both food items and nonfood items such as single-use cups, utensils, and napkins, must be packaged correctly when you receive them. Items should be delivered in their original packaging with a manufacturer's label. The packaging should be intact, clean, and protect food and food-contact surfaces from contamination. Reject food and nonfood items if packaging has any of the following problems.

**Damage** Reject items with tears, holes, or punctures in their packaging. Likewise, reject cans with labels that are not intact or have bulging or swollen ends, rust, or dents. All food packaged in a reduced-oxygen environment, such as vacuum-packed meat, must be rejected if the packaging is bloated or leaking. Items with broken cartons or seals, or items with dirty and discolored packaging should also be rejected. Do **NOT** accept cases or packages that appear to have been tampered with.





**Liquid** Reject items with leaks, dampness, or water stains (which means the item was wet at some point), as shown in the photo at left.

**Pests** Reject items with signs of pests or pest damage.

**Dates** Food items must be correctly labeled. Do **NOT** accept food that is missing use-by or expiration dates from the manufacturer. Reject items that have passed their use-by or expiration dates. Some operations label food items with the date the item was received to help with stock rotation during storage.

### Documents

Food items must be delivered with the correct documents. For example, shellfish must be received with shellstock identification tags. These tags indicate when and where the shellfish were harvested. They must be kept on file for 90 days from the date the last shellfish was used from its delivery container.

Fish that will be eaten raw or partially cooked must also be received with the correct documentation. These documents must indicate the fish was correctly frozen before you received it. Keep these documents for 90 days from the sale of the fish. If the fish was farm raised, it must have documentation that states the fish was raised to FDA standards. These documents must also be kept for 90 days from the sale of the fish.

### Food Quality

Poor food quality can be a sign that the food has been time-temperature abused and, therefore, may be unsafe. Work with your suppliers to define specific safety and quality criteria for the food items you typically receive. Reject food if it has any of the following problems.

**Appearance** Reject food that is moldy or has an abnormal color. Food that is moist when it should be dry, such as salami, should also be rejected. Do not accept any food item that shows signs of pests or pest damage.

**Texture** Reject meat, fish, or poultry that is slimy, sticky, or dry. Also reject it if it has soft flesh that leaves an imprint when you touch it.

**Odor** Reject food with an abnormal or unpleasant odor.

In addition to the guidelines above, you should always reject any item that does not meet your company's standards for quality.



**Apply Your Knowledge****Accept or Reject?**

Write an **A** next to the food items you should accept. Write an **R** next to the food items you should reject.

- ① \_\_\_\_\_ Chicken received at an internal temperature of 50°F (10°C)
- ② \_\_\_\_\_ Can of red kidney beans with a small dent on one side of the can
- ③ \_\_\_\_\_ Shell eggs received at an air temperature of 45°F (7°C)
- ④ \_\_\_\_\_ Fresh salmon with flesh that springs back when touched
- ⑤ \_\_\_\_\_ Bag of flour that is dry but has a watermark on it
- ⑥ \_\_\_\_\_ Live oysters without shellstock identification tags
- ⑦ \_\_\_\_\_ Frozen meat with large ice crystals on the packaging
- ⑧ \_\_\_\_\_ Milk received at 50°F (10°C)
- ⑨ \_\_\_\_\_ Mozzarella cheese with small spots of mold
- ⑩ \_\_\_\_\_ Vacuum-packed bacon with the seal broken but no other obvious damage

*For answers, please turn to page 5.18.*



### General Purchasing and Receiving Principles

- Purchasing
- Receiving and Inspecting

### Storing

- Labeling
- Date Marking
- Temperatures
- Rotation
- Preventing Cross-Contamination

## Storing

Following good storage guidelines for food and nonfood items will help keep these items safe and preserve their quality. In general, you must label and date mark your food correctly. You must also rotate food and store it at the correct temperature. Finally, you need to store items in a way that prevents cross-contamination.

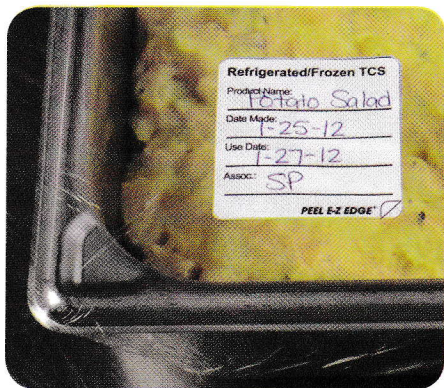
## Labeling

Labeling food is important for many reasons. Illnesses have occurred when unlabeled chemicals were mistaken for food such as flour, sugar, and baking powder.

Customers have also suffered allergic reactions when food was unknowingly prepped with a food allergen that was not labeled.

### Labeling Food for Use On-site

- All items that are not in their original containers must be labeled.
- Food labels should include the common name of the food or a statement that clearly and accurately identifies it, as shown in the photo at left.
- It is not necessary to label food if it clearly will not be mistaken for another item. The food must be easily identified by sight.



### Labeling Food That Is Packaged On-site for Retail Sale

Food packaged in the operation that is being sold to customers for use at home, such as bottled salad dressing, must be labeled. The label must include the following information.

- Common name of the food or a statement that clearly identifies it.
- Quantity of the food.
- List of ingredients and sub ingredients in descending order by weight. This is necessary if the item contains two or more ingredients.
- List of artificial colors and flavors in the food. Chemical preservatives must also be listed.
- Name and place of business of the manufacturer, packer, or distributor.
- Source of each major food allergen contained in the food. This is not necessary if the source is already part of the common name of the ingredient.

These labeling requirements do not apply to customers' leftover food items placed in carry-out containers.



## ! Pathogen Alert



### Date Marking

Refrigeration slows the growth of most bacteria. Some types, such as *Listeria monocytogenes*, grow well at refrigeration temperatures. When food is refrigerated for long periods of time, these bacteria can grow enough to cause illness. For this reason, ready-to-eat TCS food must be marked if held for longer than 24 hours. It must indicate when the food must be sold, eaten, or thrown out.

Ready-to-eat TCS food can be stored for only seven days if it is held at 41°F (5°C) or lower. The count begins on the day that the food was prepared or a commercial container was opened. For example, a food handler that prepared and stored potato salad on October 1 would write a discard date of October 7 on the label.

Operations have a variety of systems for date marking. Some write the day or date the food was prepped on the label. Others write the use-by day or date on the label, as shown in the photo at left.

Sometimes, commercially processed food will have a use-by date that is less than seven days from the date the container was opened. In this case, the container should be marked with this use-by date as long as the date is based on food safety.

When combining food in a dish with different use-by dates, the discard date of the dish should be based on the earliest prepared food.

Here is an example: a food handler is prepping a jambalaya on December 4 using shrimp and sausage. The shrimp has a use-by date of December 8, and the sausage has a use-by date of December 10. So, the use-by date of the jambalaya is December 8.

### Temperatures

Pathogens can grow when food is not stored at the correct temperature. Follow these guidelines to keep food safe.

- Store TCS food at an internal temperature of 41°F (5°C) or lower or 135°F (57°C) or higher.
- Store frozen food at temperatures that keep it frozen.
- Make sure storage units have at least one air temperature measuring device. It must be accurate to  $\pm 3^{\circ}\text{F}$  or  $\pm 1.5^{\circ}\text{C}$ . This device must be located in the warmest part of refrigerated units, and the coldest part of hot-holding units. The hanging thermometer in the photo at left is a common type of temperature measuring device used in coolers.
- Do not overload coolers or freezers. Storing too many food items prevents good airflow and makes the units work harder to stay cold. Be aware that frequent opening of the cooler lets warm air inside, which can affect food safety.
- Use open shelving. Do not line shelves with aluminum foil, sheet pans, or paper. This restricts circulation of cold air in the unit.
- Monitor food temperatures regularly. Randomly sample the temperature of stored food to verify that the cooler is working.







### Rotation

Food must be rotated in storage to maintain quality and limit the growth of pathogens. Food items must be rotated so that those with the earliest use-by or expiration dates are used before items with later dates.

Many operations use the first-in, first-out (FIFO) method to rotate their refrigerated, frozen, and dry food during storage. Here is one way to use the FIFO method.

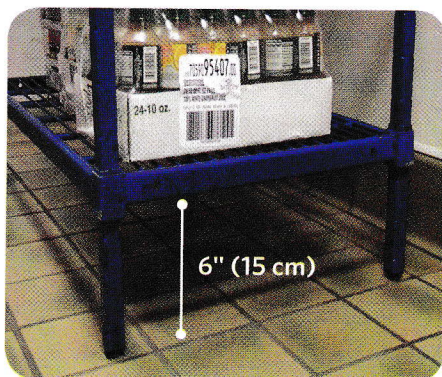
- 1 Identify the food item's use-by or expiration date.
- 2 Store items with the earliest use-by or expiration dates in front of items with later dates, as shown in the photo at left.
- 3 Once shelved, use those items stored in front first.
- 4 Throw out food that has passed its manufacturer's use-by or expiration date.

### Preventing Cross-Contamination

Food must be stored in ways that prevent cross-contamination. Follow the guidelines throughout this section.

#### Supplies

- Store all items in designated storage areas.
- Store items away from walls and at least six inches (15 centimeters) off the floor, as shown in the photo at left.
- Store single-use items (e.g., sleeve of single-use cups, single-use gloves) in original packaging.



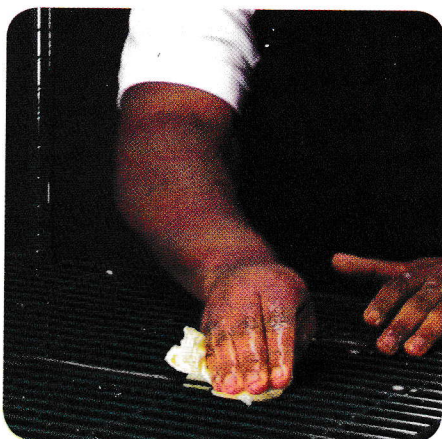
#### Containers

- Store food in containers intended for food.
- Use containers that are durable, leak proof, and able to be sealed or covered.
- **NEVER** use empty food containers to store chemicals. **NEVER** put food in empty chemical containers.

#### Cleaning

Keep all storage areas clean and dry. Clean floors, walls, and shelving in coolers, freezers, dry-storage areas, and heated holding cabinets on a regular basis, as shown in the photo at left. Clean up spills and leaks promptly to keep them from contaminating other food.

- Clean dollies, carts, transporters, and trays often.
- Store food in containers that have been cleaned and sanitized.
- Store dirty linens away from food. Store them in clean, nonabsorbent containers. They can also be stored in washable laundry bags.





### Storage Order

- Wrap or cover food. Store raw meat, poultry, and seafood separately from ready-to-eat food. If raw and ready-to-eat food cannot be stored separately, store ready-to-eat food above raw meat, poultry, and seafood, as shown in the photo below. This will prevent juices from raw food from dripping onto ready-to-eat food.
- Raw meat, poultry, and seafood can be stored with or above ready-to-eat food in a freezer if all of the items have been commercially processed and packaged. Frozen food that is being thawed in coolers must also be stored below ready-to-eat food.
- Store raw meat, poultry, and seafood in coolers in the following top-to-bottom order: seafood, whole cuts of beef and pork, ground meat and ground fish, whole and ground poultry. This order is based on the minimum internal cooking temperature of each food. As an exception, ground meat and ground fish can be stored above whole cuts of beef and pork. To do this, make sure the packaging keeps out pathogens and chemicals. It also must not leak.



A Ready-to-eat food

B Seafood

C Whole cuts of beef and pork

D Ground meat and ground fish

E Whole and ground poultry

### Storage Location

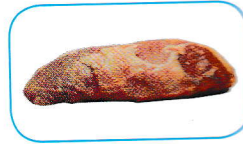
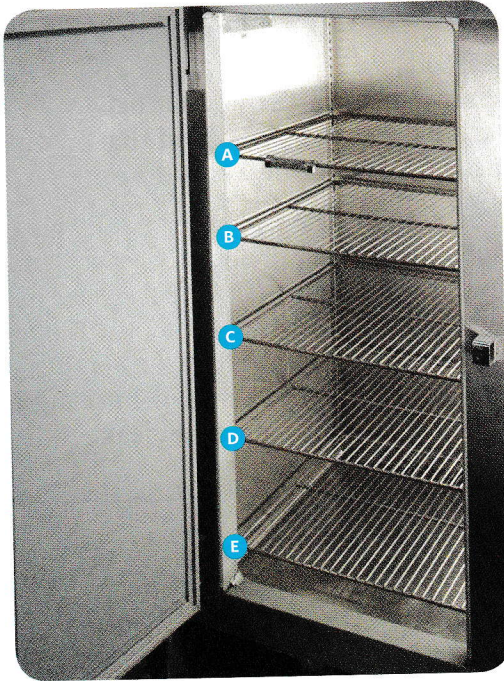
Food should be stored in a clean, dry location away from dust and other contaminants. **NEVER** store food in these areas to prevent contamination.

- Locker rooms or dressing rooms
- Restroom or garbage rooms
- Mechanical rooms
- Under unshielded sewer lines or leaking water lines
- Under stairwells

### Apply Your Knowledge

#### Load the Cooler

Next to the number of each food item, write the letter of the shelf it belongs on.



① \_\_\_\_\_ Whole meat



② \_\_\_\_\_ Whole chicken



③ \_\_\_\_\_ Pecan pie



④ \_\_\_\_\_ Raw ground beef



⑤ \_\_\_\_\_ Raw fish

#### What's Wrong with This Picture?

Find the unsafe storage practices in this picture.




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For answers, please turn to page 5.18.



## Chapter Summary

- Food must be purchased from approved, reputable suppliers. These suppliers must be inspected and meet applicable local, state, and federal laws.
- Deliveries must be inspected by designated staff trained to follow food safety guidelines. That will include a visual inspection of food as well as checks to make sure the food has been received at the correct temperature.
- Sometimes food items will be recalled by the manufacturer. Identify these items, remove them from inventory, and secure them in an appropriate location. Mark them so that staff does not use them.
- Cold TCS food must be received at 41°F (5°C) or lower. Hot TCS food must be received at 135°F (57°C) or higher. Frozen food should always be received frozen. Some items have other temperature requirements. Received food should have the correct color, texture, and odor.
- The packaging of delivered food items must be intact and clean, and it must protect food from contamination. There should also be no signs of pests or dampness. Food items should be correctly labeled and contain the correct documentation.
- Food must be stored in ways that prevent cross-contamination. Raw meat, poultry, and seafood should be stored separately from ready-to-eat food. If this is not possible, store ready-to-eat food above raw meat, poultry, and seafood.
- Food should be labeled before it is stored. The label should include the common name of the food. If TCS food was prepped in-house and will be stored longer than 24 hours, it must also be date marked. This food can be stored for only seven days if held at 41°F (5°C) or lower.
- Food should only be stored in a designated storage area. It should be stored away from walls and at least six inches (15 centimeters) off the floor. Stored food items should always be rotated so that older items are used first.

### Chapter Review Case Study

To keep food safe during purchasing, receiving, and storage, you must know how to purchase food from approved, reputable suppliers; use criteria to accept and reject food during receiving; label and date food; and store food and nonfood items to prevent time-temperature abuse and contamination.

**Now, take what you have learned in this chapter and apply it to the following case study.**

A shipment was delivered to Enrico's Italian Restaurant on a warm summer day. Alyce, who was in charge of receiving, began inspecting the shipment. First, she inspected the bags of frozen shrimp. Alyce noticed the ice crystals inside the bags and took that as a good sign that the shrimp were still frozen.

Next she used a thermometer to test the temperature of the vacuum-packed packages of ground beef, which was 40°F (4°C). Then Alyce used the same thermometer to measure the temperature of the fresh salmon. The salmon was on ice, although it seemed as though much of the ice had melted. The internal temperature of the salmon was 43°F (6°C), and the flesh sprung back after she touched it. She accepted the ground beef and the salmon and put them on the side to put away.

Not wanting to take the time to clean and sanitize the probe, Alyce felt several containers of sour cream. They felt cold, so Alyce also put them on the side to put away. Finally, Alyce inspected the cases of pasta. One of the cases was torn, but the pasta inside the case didn't seem to be damaged.

Once she finished receiving the food, Alyce was ready to put it into storage. First, she carried the bags of shrimp to the freezer. She wondered who had left the freezer without making sure the door was completely shut. Alyce then loaded a case of sour cream on the dolly and wheeled it over to the reach-in cooler. When she opened the cooler, she noticed that it was tightly packed. However, she was able to squeeze the case into a spot on the top shelf.

Next, she wheeled several cases of fresh ground beef and the fresh salmon over to the walk-in cooler. She noticed that the readout on the outside of the cooler indicated 39°F (4°C). Alyce pushed through the cold curtains and bumped into a hot stockpot of soup as she moved inside. She moved the soup over and made a space for the ground beef. She was able to put the salmon on the shelf above the soup. Alyce said hello to Mary, who had just cleaned the shelving in the unit and was lining it with new aluminum foil.



① What receiving mistakes did Alyce make?

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② What storage mistakes were made at the operation?

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*For answers, please turn to page 5.19.*

## Study Questions

Circle the best answer to each question.

- ① **What is the most important factor in choosing a food supplier?**
  - A It has a HACCP program or other food safety system.
  - B It has documented manufacturing and packing practices.
  - C Its warehouse is close to the operation, reducing shipping time.
  - D It has been inspected and complies with local, state, and federal laws.
- ② **What is the best method of checking the temperature of a delivery of fresh fish?**
  - A Feel the fish, making sure that it is cold to the touch.
  - B Insert a thermometer probe into the thickest part of the fish.
  - C Place a time-temperature indicator on the surface of the fish.
  - D Use an infrared thermometer to check the fish's temperature.
- ③ **What is the correct temperature for receiving cold TCS food?**
  - A 32°F (0°C) or lower
  - B 41°F (5°C) or lower
  - C 45°F (7°C) or lower
  - D 50°F (10°C) or lower
- ④ **Milk can be received at 45°F (7°C) under what condition?**
  - A It is thrown out after 2 days.
  - B It is cooled to 41°F (5°C) or lower in 4 hours.
  - C It is immediately cooled to 41°F (5°C) or lower.
  - D It is served or used in the operation within 2 hours.
- ⑤ **Frozen shrimp is rejected during receiving for having large ice crystals on the food and packaging. What is the problem that caused this?**
  - A Cross-contact
  - B Cross-contamination
  - C Time-temperature abuse
  - D Incorrect cleaning and sanitizing
- ⑥ **What is required when receiving fish that will be served raw or partially cooked?**
  - A It must be alive when received.
  - B It must be thawed in the microwave.
  - C It must be used within 24 hours of receiving.
  - D It must be correctly frozen before you receive it.



- ⑦ What must be included on the label of TCS food that was prepped in-house?
- A Date that the food was received
  - B Name of each TCS ingredient included
  - C Date that the food should be thrown out
  - D List of all potential ingredients in the food
- ⑧ How long can TCS food that was prepped in-house be stored?
- A 3 days
  - B 5 days
  - C 7 days
  - D 9 days
- ⑨ When storing food using the FIFO method, where should the food with the earliest use-by dates be stored?
- A Below food with later use-by dates
  - B Behind food with later use-by dates
  - C In front of food with later use-by dates
  - D Alongside food with later use-by dates
- ⑩ What is the problem with storing raw ground beef above prepped salads?
- A Cross-contamination
  - B Poor personal hygiene
  - C Time-temperature abuse
  - D Cross-contact with allergens
- ⑪ In top-to-bottom order, how should a fresh pork roast, fresh salmon, a container of lettuce, and a pan of fresh chicken breasts be stored in a cooler?
- A Lettuce, fresh salmon, fresh pork roast, fresh chicken breasts
  - B Fresh salmon, fresh pork roast, fresh chicken breasts, lettuce
  - C Lettuce, fresh chicken breasts, fresh pork roast, fresh salmon
  - D Fresh salmon, lettuce, fresh chicken breasts, fresh pork roast
- ⑫ How many inches (centimeters) from the floor should food be stored?
- A At least 1" (3 cm)
  - B At least 2" (5 cm)
  - C At least 4" (10 cm)
  - D At least 6" (15 cm)

*For answers, please turn to page 5.19.*