**Narrator Introduction:** For foods that spoil, making a profit means either shipping the food fast enough to stay fresh or preserving it for long trips.

Choose an item on the left to see how speedy travel, preservation technology and market forces shape how food gets from its place of origin to places thousands of miles away.

**Narrator Intro:** If you’re eating a banana, chances are good that it came from Central or South America. In particular, Ecuador exports more bananas than any other country, sending them to places as far away as Japan and Russia. What’s more, most growers in this region overwhelmingly produce a single type of banana: the Cavendish.

Just touch “ripeness” to start exploring the different technologies that allow bananas to survive the trip from Ecuador to destinations around the world.

**Learn more: Transnational Companies**
In recent decades, a globalized economy and open trade policies have led to the creation of large transnational food companies that control the flow of food from millions of producers to millions of consumers. These companies, for example, grow bananas in Ecuador and ship them to supermarkets in the United States.

**Section 1: Ripeness**- Ripening begins when you pick a banana, so you’ll first need to decide whether to pick ripe fruit that’s ready to eat—or pick green fruit that still needs time to soften.

**Learn more: Banana Breeds**
Most large banana plantations only grow a single breed of banana, called the Cavendish, which is resistant to a strain of fungus that kills banana trees. Growing a single breed of banana makes industrial production much easier, but leaves the species more at risk for new diseases and eliminates a whole range of banana color and flavors. Countries that import bananas miss out on breeds like the apple banana, with its crunchy texture and tart flavor, and the red banana, with its maroon skin and creamy flesh.

**[Btn: Ripe]**- Letting bananas ripen on the tree produces better tasting fruit, but it also makes shipping large quantities of bananas difficult. This is only done when the fruit has a short distance to travel. Continue on to “bagging” to learn what happens to the bananas picked while still green.

**[Btn: Green]**- Bananas destined for export are picked while still green, extending their life for longer trips. Ripening can also be artificially delayed until green bananas arrive at their destination. Step two, “bagging” will show how producers delay ripening.

**Section 2: Bagging**- There are many techniques for delaying the ripening of bananas long enough for export. The most popular techniques involve sealing the bananas in special plastic bags.

**Learn More: The Banana Bag**
In the presence of oxygen, all fruits produce a gas called ethylene that triggers ripening. Special plastic “banana bags” keep oxygen out, so the fruit inside doesn’t produce enough ethylene to ripen. Today, exporters sometimes put chemicals in the bag that absorb ethylene to preserve the bananas even longer. Do you want to use the banana bag?
[Btn: Yes]- The sealed bag allows bananas to be shipped long distances, but costs more money and, if exporters aren’t careful, can damage the banana. Only one more step! Select “chilling” to explore another way ripening can be delayed.

[Btn: No]- Shipping bananas without a bag saves money, but green bananas ripen in about eight days, limiting the range the fruit can travel. Just one more choice! Click “chilling” to see how refrigeration’s affects bananas during their trip.

Section 3: Chilling- Temperature can affect ripening, too. Warm temperatures cause bananas to ripen fast, but too cold temperatures can damage the fruit. To travel overseas, bananas must be kept at a precise temperature, or not refrigerated at all.

Learn more: Goldilocks Temperatures
Bananas are very sensitive to cold temperatures, making refrigeration tricky. The chilled shipping containers that transport bananas must maintain a temperature of at least 55 °Fahrenheit (13 C). Any colder and the skin will turn brown. Do you want to refrigerate the bananas?

[Btn: Yes]- Shipping bananas in refrigerated containers costs a lot of money but preserves bananas long enough to reach almost anywhere. Now that you’ve explored one-way bananas travel around the world, go back and explore the other options, or move on and select another food.

[Btn: No]- Bananas packed in special plastic bags can last 40 days without refrigeration. For shorter trips exporters save money by using the bags without expensive temperature control. Now that you’ve seen one way bananas get from the
tree to your plate, feel free to go back, explore the other options, or move on and select another food.

**Learn More: Fair trade bananas**
Global trade in bananas is big business. Large corporations dominate with networks of growers under contract, but there are smaller, independent banana growers, too. Next time you are at your local grocery, you may notice products labeled “fair trade.” This is an emerging market-based approach to certain export goods, like bananas, that, through certification and pricing, aims to support small producers in developing countries and promote certain social and environmental standards. While there are criticisms of the approach, it has emerged as an attempt to address inequalities that result from a complex global food economy.

**Narrator Intro**- The tuna sold at Japan’s finest sushi restaurants are not like the tuna you find in a can. When fresh, these tuna sell for more money than just about any other fish—but they start losing value right away. To fill the demand of sushi lovers for the freshest possible fish, tuna importers rely on a worldwide network of shipping companies; fishing fleets and middle men who compete to deliver the freshest tuna faster and fresher than the competition.

Select “species” to get started.

**Section 1: Species**- Japan imports a number of different tuna species for its sushi. The larger, fattier species sell for more money, but are harder to catch because they are becoming increasingly rare.
Learn More: Love Affair with Bluefin

Japan consumes about 80 percent of the world’s bluefin tuna catch, which amounted to just over 25,000 tons in 2009. But over the last three decades, tuna sushi has also become widely popular in Europe and North America. Taken together, this rate of global consumption has led to a significant depletion of tuna populations around the world.

[Btn: Bluefin]- Bluefin tuna is the most prized species for tuna, with whole fish usually selling for $20 per pound—and sometimes for as much as $200 per pound ($441 per kilogram). Click on “preservation” see what happens to the bluefin after they are caught.

[Btn: Yellowfin]- Yellowfin tuna are smaller and leaner than bluefin, so they sell for less money. But fishermen catch many more of them. In “Preservation,” we will explain what happens once the fish are caught.

Section 2: Preservation- Fresh fish can rot in a few hours, so any tuna must be chilled before going to market.

Learn More: Deep Freezing

Tuna can have higher body temperatures than most fish, making them much harder to freeze. To ensure freshness, a tuna must be put on ice almost as soon as it is caught, and frozen at 14 degrees Fahrenheit (-10 Celsius) to hold off rotting.

[Btn: Chilled]- Sushi lovers prize freshness and don’t like to eat fish that has been frozen. Ice-filled “tuna coffins” keep whole fish just above freezing during their journey, but only work for a short time. Select the next step, “transportation” to see how that tuna coffin gets to Japan.
[Btn: Frozen]- Specially designed coolers can freeze five tons of tuna in as little as 17 hours. These frozen tuna can last for months, but sell for less money than fresh fish. Click on “transportation” to explore the different routes the tuna can take to Japan.

Section 3: Transportation- There are few products that can lose as much value as quickly as a bluefin tuna destined for the high-end sushi market. To protect your profits, balance the cost of speed against the benefits of freshness when choosing an option in step three.

Learn More: Fish Frequent Fliers
When tuna fly, they often fly on the same planes as people. Sealed in so-called tuna coffins, many fish destined for Japan’s finest sushi market hitch a ride on commercial flights bound for Tokyo’s Narita International Airport.

[Btn: Plane]- Japan’s demand for fresh tuna has resulted in a worldwide trade network dedicated to importing whole tuna, from anywhere in the world, in under 50 hours. This keeps the tuna fresh, but costs a lot of money and contributes to the high price of luxury sushi. Touch this button to see how tuna fly around the world. Now that you’ve seen one-way tuna gets to Japan, try out some other options, or move on to another food.

[Btn: Boat]- Shipping by sea costs less money than flying, but can only be used for frozen tuna, which sell for less money at market. And that’s just one of the ways the tuna economy keeps Japanese diners supplied with tuna. Go back and explore the other options, or move on and select another food.

Lamb:
**Narrator Intro**- Even though it’s thousands of miles away from major markets, New Zealand is now the world’s largest exporter of lamb. Thanks to an environment that lets sheep pasture all year and a government-supported ad campaign to promote its meat, this small, remote nation dominates the world’s trade in sheep.

Touch “processing” to see how lamb gets from all the way from New Zealand to destinations around the world!

**Section 1: Processing**- When exported overseas, lamb travel in two ways: either as animals kept alive during the trip, or as processed meat preserved with at low temperatures.

**Learn More: Ships for Sheep**
Shipping sheep live allows foreign butchers to process the animals according their local religious or sanitary laws. For maximum economic efficiency, live sheep often travel on enormous ships. One ship M/V *Stella Deneb*, has 2,072 pens capable of moving around 130,000 sheep in a single trip.

**[Btn: Live]**- Although the majority of meat is shipped after processing, exporting lamb as live animals is also an option. One of the world’s largest livestock ships in the world, the M/V *Becrux*, transported over 2 million sheep in its first four years of operation. Move on to step 2, “temperature” to explore what happens when the meat isn’t shipped live.

**[Btn: Processed]**- Today, most lamb is shipped after processing in refrigerated shipping containers called “reefers.” Reefers allow meat to travel around the world without ever leaving the cold. This unbroken trip from meat-processing refrigerators to reefers to chilled supermarket aisles is known
as the “cold chain.” Continue on to “temperature” to decide how the butchered meat enters the cold chain.

**Section 2: Temperature**- The cold chain that keeps lamb fresh has two temperature settings. Meat can be chilled, which keeps the temperature just around freezing, or totally frozen, which requires temperatures well below zero.

**Learn More: Food Miles**
For people concerned with the environmental impact of their food, the distance that food traveled can be an important issue. They assume that the farther food has to travel, the worse it is for the environment. A closer look shows that travel distance sometimes can make up only a small part of a complex story. Whether the food is grown in fertile areas, like New Zealand, or in harsher climates, like in England, may have as much of an environmental impact as the distance food has to travel between the field and the fork.

[Bttn: Chilled]- Exporting chilled meat means a tradeoff between retail price and shipping cost. Consumers pay more for chilled meat than frozen meat, but preserving chilled meat for long voyages requires the use of expensive vacuum packing. Interested in finding out some other ways lamb gets around? Go back and try some different options, or move on and select another food.

[Bttn: Frozen]- Frozen meat sells for less money than chilled meat, but costs less to ship, since frozen meat can withstand long distance travel without the need for costly vacuum sealing. And that’s just one of the ways a country isolated in the Pacific supplies the world with lamb. Go back and try some other options, or select another food.
Narrator Introduction- New York State grows a lot of apples, but processes half of those apples into juice, sauce or cider. To fill the demand for fresh apples, stores mix local New York apples with imports. Depending on the time of year and the variety of apple, fresh apples in New York stores can come from the next county over, or from as far away as Chile, New Zealand or America’s largest apple producers in Washington State.

Select different combinations of seasons and varieties to see where your favorite kind of apple comes from.

Learn More: Buying Local
While supermarkets still sell the majority of fresh foods in the United States, some consumers want to buy local food straight from the grower. At many of New York City’s farmers’ markets, shoppers can buy fresh produce, like apples directly from Breezy Hill Orchard and Cider Mill in the Hudson Valley. Other innovative distribution systems are also becoming popular, like “food hubs” that distribute products from several small farms to larger markets.

[Bttn: Winter]-

Narrator Introduction- The local harvest season may have finished, and the foreign harvest season may still be months away, but since apples can be stored for many months, New York retailers still have many different sources of apples to choose from. Select a breed to see where apples come from during these cold months.

Learn More: Storing Apples
Apples can be stored for many months without spoiling if they
are kept in storehouses with special conditions including very low levels of oxygen gas. Under these conditions, apples can be preserved for up to 240 days. Washington State has invested in giant controlled-atmosphere warehouses. It also has a well-established transportation network that allows it to export apples year-round. By contrast, most of the apples from New York State are either eaten right after harvest or processed into juice, sauce or cider. Relatively few apples are stored for the off season, when New York shops sell imported apples.

**[Btn: Red Delicious]**- Thanks to an efficient orchard industry and the right kind of climate, Washington State provides most of the Red Delicious apples sold in New York groceries during the winter. To ensure that apples are available all year round, Washington State has built special warehouses for storing apples so that they won’t rot. You can touch down here to learn more about storing apples. Or, if you want, try another kind of apple and season, or select another food.

**[Btn: Gala]**- During the winter, New York grocery stores turn to Washington State to fill demand. Washington State can export apples during the entire year thanks to giant warehouses that preserve apples and a transportation network that delivers the apples directly from the orchard to the store. Click below to learn more about apple storage, pick another season or apple variety, or move along to another food.

**[Btn: Fuji]**- In New York, during the winter, markets import Fujis from Washington State. Washington can store its apples for almost an entire year, and has a transportation network that delivers the apples directly from the orchard to the store. Click below to learn how they preserve the apples, select another combination of season and variety, or move on to
another food.

[Btttn: Spring/Summer]

**Narrator Introduction**- In the spring and summer, before the North American apple harvest season, New York imports apples from the Washington State and countries in the Southern hemisphere. Foreign imports peak in July, but fall off dramatically in August as New York begins its own apple harvest.

[Btttn: Red Delicious]- Red Delicious is the most widely grown apple variety in Washington State, followed by Gala and Fuji. And even during the offseason, Washington apples are shipped around the U.S. by truck and rail, with each refrigerated truck or railcar carrying hundreds, sometimes thousands of boxes of fruit. And that’s just one of the places that your apples come from. Try out some different apple varieties, or move on to another commodity.

[Btttn: Gala]- Chile is by far the largest foreign supplier of apples to the U.S., and exports more Gala apples than any other variety. To ensure that the apples survive the trip, the fruit travels in special refrigerated shipping containers that prevent the apples from ripening. And that’s just one of the places that your apples come from. Select different apple varieties and seasons, or move on to another food.

[Btttn: Fuji]- To ensure that the apples survive the trip across the Pacific, the fruit travels in special refrigerated shipping containers that prevent the apples from ripening. Ready for another season or type of apple? Or do you want to explore a different food?
Narrator Introduction - The New York State apple harvest begins in August, providing local apples to grocery stores and farmers’ markets. Alongside regional specialties like the McIntosh and Empire varieties, New York State orchards also grow the popular Red Delicious, Gala and Fuji apples. But sometimes the convenience of dealing with large organizations leads grocers to buy out of state apples.

Learn More: America’s Apple Capitol
It’s not just that Washington has a great environment for growing apples, it also has a great transportation network for shipping them. Highways cut through the state’s three major growing regions, providing easy access for the refrigerated trucks that move the apples to different American cities. Apples bound for the Northeast market also travel by cross-country train. Competitive costs, assistance with marketing and ease of working with large distributors let Washington apples compete with New York apples all year round.

Btn: Red Delicious - Although its popularity has declined over the last 15 years, Red Delicious is still America’s most common apple variety. New York grows more Red Delicious apples than Fuji or Gala, but the scale of Washington’s apple industry still enables it to dominate the market. Click below to find out why Washington has such a huge advantage in selling apples, try out some different apple varieties, or move on to another commodity.

Btn: Gala - Over the last 10 years, Gala apples have become the second most popular variety in America, after Red Delicious. Even though New York State apple orchards harvest Gala apples in the fall, the advantages provided by Washington
State’s giant apple industry let Washington Gala apples compete with local fruit on New York grocery shelves. Touch below to learn the secrets behind Washington State’s apple dominance. Or do you want to explore a different apple type and season? You can also move on to a new food.

[Btn: Fuji]- New York State orchards produce Fuji apples during the fall, but Washington State’s powerful apple industry ensures that at least some its Fuji apples end up in New York stores. However, those Fujis may soon come from even farther away. In recent years, China has become the major player in the world apple market, and over 60 percent of the apples grown there are Fujis. Click below for more information about Washington’s giant apple industry, or click to the left to select a new season, apple variety or different food entirely.