



Examining Plastic and Food Waste: A Package Deal

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Our society's reliance on plastic is a conundrum. [It continues our dependence on fossil fuels, the majority is not recycled \(or even recyclable\), and its escape into natural environments is wreaking havoc in ways we are only beginning to understand.](#) Yet at the same time, plastic packaging has played an important role in the modern food system. Plastic is cheap and lightweight but also protective – keeping food products clean, safe, convenient, and often helping them last longer. That last point is arguably the most important in a growing debate over society's use of plastic and a recognition that reducing food waste is one of the most effective ways to cut global greenhouse gas emissions.

Plastic is manufactured from crude oil or natural gas feedstocks, but some Life Cycle Assessments (LCAs)^{1,2} have shown that because packaging often makes up such a small percentage of food product weight, the contribution of plastic to the product's overall emissions footprint is relatively small. For example, the [Impact Calculator](#) on ReFED's [Insights Engine](#) shows that the farm to fork emissions for 1kg of tomatoes is 1.5 kg CO₂e. Of that, the packaging contributes just 0.15 kg CO₂e (10%)³. So the reasoning for continued use of plastic is that the emissions avoided by preventing food waste vastly outweigh the environmental cost of the packaging.

Somewhat surprising, then, are the findings from UK charity [WRAP's latest report](#), showing that for certain fruits and vegetables, plastic packaging actually increases the amount of food waste generated by households.

Key to interpreting these results is taking a step back to think about the role that packaging plays as a food product moves through the supply chain. Manufacturers and retailers make logistical packaging decisions upstream about how best to protect food during processing, transport, and storage for sale; they also want to extend shelf-life as long as possible and make it easy for workers to handle the products. These decisions do prioritize avoiding food waste, because these stakeholders lose money when a product is damaged or spoiled.

But we should also look at decisions made from the consumer perspective – packaging should be sensitive to portion size and convenience, as well as provide information to buyers about what they are eating. Consumer preferences related to purchasing can be more readily gauged by retailers based on in-store activity – they have less insight to usage and consumption at home. This means that the decision to use plastic, and how much of it, can be made for any number of reasons – and what the grocery store thinks is best may not line up with what's best for the customer.

The WRAP study recommends selling produce loose, which does two things– it gives customers the flexibility to buy only the amount they need (reducing waste of those last few potatoes in the sack) and removes a best-before/sell-by label (allowing the customer to decide for themselves when produce is spoiled, rather than tossing it on a somewhat arbitrary date that generally refers to quality rather than safety). The report acknowledges, however, that there may be scenarios in which it can be proven that a label does prevent food waste, in which case the use of packaging may be justified.

The results suggest that the answer to reducing food waste through packaging (or lack thereof) has more to do with understanding the causes of food waste along the value chain, and making design choices that target those causes while also meeting the necessary storage, handling, and communication requirements.

Some good news is that the choice for packaging does not need to be plastic or nothing at all – besides using recoverable/recyclable materials, manufacturers are exploring biodegradable plastics, bio-based plastics, and packaging specifically designed to reduce waste with the end-user in mind. ReFED's [Solution Provider Directory](#) has information about organizations working on cutting-edge packaging solutions. Our friends at the Climate Collaborative offer a range of [sustainable packaging case studies and other resources](#). And the [Sustainable Packaging Coalition](#) will soon be releasing a report on best practices for reducing food waste.

ReFresh Recipes

Shopping your fridge first is an important strategy for reducing food waste. Here's a recipe idea that will help you use what you have before buying more!

RUSTIC POTATO CHIPS

WHY BUY CHIPS, WHEN YOU CAN BAKE THEM YOURSELF?

Sure, making potato chips out of potato peelings is economical — but it's pretty delicious, too. Get creative with your spices — think chili, curry powder, or garlic — or stick with a simple sprinkle of salt and black pepper. Then all you have to do is bake 'em, crunch 'em, and grin.

USES UP

Potato Peels

MAKES

4 Servings



INGREDIENTS

3 to 4 cups potato peels from well-scrubbed potatoes

2 Tbsp neutral oil, such as organic canola, safflower or grapeseed

DIRECTIONS

Preheat the oven to 400°F. Press the peels between a couple of sheets of paper towel to remove excess moisture. Place on a cookie sheet and drizzle with the oil. Sprinkle with the salt and spice, if using. Toss to coat. Bake until the peels are crisp, about 30 minutes. Serve immediately or store in an airtight container for up to 2 days.

CREDIT "Eat it Up!" by Sherri Brooks Vinton, Da Capo Lifelong Books, 2016

FOOD STORAGE TIPS FROM SAVETHEFOOD.COM

MEAT, POULTRY & SEAFOOD

DELI MEATS

REFRIGERATE IT: Yes **AT FRESHEST:** Unopened, 2 weeks; opened, 3 to 5 days; frozen, 1 to 2 months

OPTIMAL STORAGE: Store prepackaged meat in original packaging; for meat that is not prepackaged, keep in an airtight container in either the shallow meat drawer or the lowest shelf of the refrigerator.

FREEZING: Keep in original packaging or wrap tightly in heavy-duty plastic wrap or freezer paper and then again in heavy-duty aluminum foil. Thaw in the refrigerator.

USE IT UP/REVIVAL: Deli meat can be eaten after the "sell by" date, but it's not a good idea to eat it cold after the "use by" or "best by" date. If it is past that date and still smells and appears fine, cook it thoroughly before eating. Cooked deli meat makes a great breakfast accompaniment for eggs. For some cuts, when a whole slice is cooked, it will form a cup shape that can then act as a "basket" for the eggs.

FRESH FISH

REFRIGERATE IT: Yes **AT FRESHEST:** Fresh — Raw, 1 to 2 days; cooked, 3 to 4 days; frozen raw, 2 to 6 months (lean fish keeps longer); frozen cooked, 4 to 6 months Smoked — 2 weeks; frozen, 2 months

OPTIMAL STORAGE: Remove from package, remove any guts, and pat dry with paper towels. Place on a cake rack set in a shallow pan for up to 24 hours; fill the pan with crushed ice if it will be stored more than 24 hours. Do not allow ice to come directly into contact with the fish. Cover the pan with plastic wrap or foil, seal tightly, and refrigerate. Each day, rinse the fish under cold water, clean the rack and pan, and change the ice. Smoked fish should be stored in an airtight container on the lowest shelf of the refrigerator.

FREEZING: Pat dry with paper towels. Wrap tightly in plastic wrap, squeezing out all the air, then wrap tightly in aluminum foil and freeze. Thaw in the refrigerator.

USE IT UP/REVIVAL: Fish heads can be used to make fish soup or bouillabaisse. They're also used in several Asian dishes, such as curries. Fish tacos are a great way to use up leftover fish.

FRESH MEAT

REFRIGERATE IT: Yes **AT FRESHEST:** Poultry, whole cuts — Raw, 1 to 2 days; cooked, 3 to 4 days; frozen raw, 9 to 12 months; frozen cooked, 3 to 4 months

Pork, whole cuts — Raw, 3 to 5 days; cooked, 4 to 5 days; frozen raw, 4 to 6 months; frozen cooked, 2 to 3 months

Beef, whole cuts — Raw, 3 to 5 days; cooked, 4 to 5 days; frozen raw, 6 to 12 months, depending on cut; frozen cooked, 2 to 3 months

Lamb, whole cuts — Raw, 1 to 2 days; cooked, 4 to 5 days; frozen raw, 9 months; frozen cooked, 2 to 3 months

Ground meats — Fresh, 1 to 2 days; frozen, 3 to 4 months

OPTIMAL STORAGE: Store on the bottom shelf of the refrigerator, wrapped tightly in airtight packaging (it's best to leave it in the store packaging until first use). Place on a tray if there is a chance of dripping. The longer meat is left warmer than refrigerated temperatures, the more quickly it will spoil. Therefore, shop for it last and go directly home to put it away, if possible. Alternatively, keep a cooler in your car. Freeze unless you plan to use it within a couple of days. Poultry should not be rinsed before use. Cooked meat should be stored in airtight containers.

FREEZING: Divide meat into meal-size portions. If freezing for a short period, one layer of wrapping is sufficient. If freezing for longer than 2 months, wrap in a second layer to prevent freezer burn. The original packaging is often not moisture proof. It's preferable to rewrap more tightly so that the meat is exposed to less air. If leaving in original packaging, overwrap tightly with heavy-duty foil or freezer paper, or place in a zip-top freezer bag and remove the air. If repackaging, separate portions with freezer paper, wrap again tightly in freezer paper, then place in an airtight container or a zip-top freezer bag with the air removed. An additional layer of heavy-duty foil before putting the wrapped meat in the container is optional and may help if it will be stored for a long period. Thaw in an ice-water bath, a microwave, or the refrigerator.

USE IT UP/REVIVAL: Portions with freezer burn are not harmful but may be dry and tasteless. If desired, cut out those areas and discard; the rest can be eaten. Bones can be used to make stock or add flavor to beans.

To download the entire Food Storage Guide, go to: www.savethefood.com/food-storage

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QUICK TRICKS

How to Store and Prepare Fresh Fruits and Vegetables to Prevent Food Waste

Alice Henneman, MS, RDN Extension Educator

About 90 billion pounds of edible food goes uneaten each year in the United States, costing consumers about \$370 per person yearly. Tossed fruits (\$45) and vegetables (\$66) account for about 30% of this amount. Proper storage and preparation of fresh produce can help save money and better utilize the resources that go into producing food (land, water, energy).

Following are some methods for prolonging the life of fresh produce.

Clean the Fridge Chopped Salad

A chopped salad is known for containing small pieces of fresh produce, usually vegetables. Possibilities include onions, bell peppers, carrots, tomatoes, celery, lettuce, spinach, cabbage, zucchini, cauliflower, broccoli, kale, peas, radishes, cucumbers, corn and zucchini.

Chopped salads are a delicious dish for cleaning out your refrigerator. Additional foods tossed into a chopped salad, but not necessarily chopped, include individual cooked shrimp; nuts; sunflower seeds; strips of grilled or broiled steak; beans such as black or garbanzo beans; boiled egg slices or wedges; cubed ham; bacon bits; cheese; olive slices; and fruits such as mandarin orange wedges, blueberries and apple chunks. Here is a simple basic recipe.

Basic Tossed Salad Recipe

Servings: Varies on how much fridge cleaning you do in making this salad!

Ingredients

- An assortment of fruits and vegetables; plan on enough to make about a 1-1/2 to 2 cups salad per person
- Additional cooked meat, eggs, cheese, cooked dry beans and lentils, nuts, seeds, etc., if desired
- Salad dressing of your choice
- Salt and pepper to taste, if desired

Directions

1. Prepare fruits and vegetables shortly before serving. Wash all fruits and vegetables even if you plan to remove the skin. Use smaller-sized produce "as is," chop larger vegetables into smaller pieces. Mix together.
2. Mix in any additional meat, cheese, etc.
3. Toss with about 1 to 2 tablespoons of dressing per each 2 cups of salad. Start with the smaller amount of dressing and add more if needed. Serve.

Tip: A chopped salad may be easier to eat served from some type of dish with sides.

For more waste reducing tips, go to:

www.food.unl.edu/cook-it-quick-documents/makeover-your-leftovers.pdf



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