

Checkout Choices: The Paper vs. Plastic Controversy

Who would have thought that choosing between paper and plastic at the checkout would present such a dilemma? For a while the environmentally conscious were convinced that paper was the more ecological choice. (It certainly seems more natural, as a renewable, recyclable plant product.) Some communities have even banned the ubiquitous plastic shopping bag. Research hasn't exactly confirmed the ecological superiority of paper, however. In fact, some experts provide solid evidence that plastic is sometimes the more ecological choice.

Of course, both plastic and paper bags impact the environment, using natural resources and contributing to greenhouse gas production in their manufacture, transportation, and disposal. Life cycle analysis is what scientists do to figure out the environmental impact of an item. Plenty of these have been conducted on plastic and paper bags, but the information generated can be tricky to compare. For example, when fully assessing the impact of a bag, you need to know if it's made from recycled or virgin materials (and if paper, whether the timber was harvested from a sustainable forest), how far the manufacturing supplies will travel, and how many miles the bag will travel to the final consumer. To assess the carbon footprint of production, you need to know the manufacturer's environmental policies. And when gauging the long-term impact of the product, it depends in part on whether the bag will be reused or recycled or composted or dumped in the landfill.

Keeping the fact that such variables exist in mind, here is just some of the key information about both plastic and paper bags:

Plastic Bags

Cause less global warming pollution and have less of an impact on biodiversity and water, according to scientists at the National Resources Defense Council (NRDC). For example, plastic bags use 40 percent less energy during production and less than 4 percent of the water used to make paper bags. And plastic bags generate 79 percent fewer greenhouse gas emissions than composted paper bags.

Cost less to transport, saving on fuel costs. In fact, it would take about seven trucks to transport the same number of paper bags as a single truck of plastic bags, according to The Environmental Literary Council.

Take up less landfill space. Plastic bags account for about 9 to 12 percent of waste volume, while paper occupies about half of overall landfill volume.

Take less energy to recycle. It takes 91% less energy to recycle a pound of plastic than it takes to recycle a pound of paper.

On the other hand:

Ninety percent of grocery bags are plastic, which is made from petroleum. It takes 12 million barrels of oil to make a year's worth of plastic bags (100 billion of them) for Americans.

Five of the top six chemicals that produce the most hazardous waste (according to EPA rankings) are used in plastics production.

Less than 5 percent of plastic bags are recycled. About 4 billion plastic bags are thrown away -- littered throughout the world -- each year. Tied end to end, they could circle the earth 63 times. Instead they hang from fences and trees, blow across streets and fields.

Because recycling plastic is expensive and time-consuming, many of the plastic bags collected for recycling are shipped for incineration to countries with lax environmental laws.

When improperly disposed of, plastic bags cause problems in coastal areas, where they threaten sea life for as long as 1,000 years while the plastic remains in the water. Sea turtles mistake them for jellyfish and as many as one million sea creatures are killed each year by plastic bags, which also clog sewer pipes and cause stagnant, unhealthy water for humans.

Plastic does not break down in the landfill. It will always be there. Even biodegradable plastic -- which is made of wood fibers mixed with plastic fibers -- leaves tiny plastic pieces in the earth.

Paper Bags

Can hold more than plastic bags, if packed well.

Are more often recycled than plastic bags. According to the EPA, Americans currently recycle 19.4% of paper bags but only 0.6 percent of plastic bags. (Granted, both numbers are too low!)

Are biodegradable. While modern landfills don't allow for this process to occur as it should (the bags are buried and receive no air and sunlight for decomposition), paper bags do naturally break down -- as mulch in the garden, for example.

Do not rely on petrochemical production.

Can be produced from sustainable forests.

On the other hand:

The paper industry has an enormous environmental footprint. It takes more than four times as much energy (2,511 BTUs) to produce a paper bag as it does a plastic bag (594 BTUs). And paper bag production generates 50 times more water pollutants and 70 percent more air pollutants than the plastic bag production.

About 14 million trees were used in 1999 to make 10 billion paper bags for Americans. And when forests are cut down to make paper, major absorbers of greenhouse gases are eliminated.

A paper bag generates greater methane emissions in the landfill than a plastic bag.

For strength, most paper grocery bags are made from virgin pulp, not recycled materials.

What to Do

All this research may make you feel like you're caught between a paper mill and a petrochemical plant. But this is one environmental dilemma that has a fairly easy solution: BYOB. Make a small investment in reusable bags and keep them in your home, your car, and/or your office. You can find bags made of all kinds of materials; look for those that are sturdy (heavy canvas is one good choice) and roomy enough to haul your groceries (string cotton bags expand greatly but can also be easily tucked into a purse or backpack). If you're the least bit crafty you might even want to try to make your own out of fun fabrics. Another option is storage crates, which make loading and unloading groceries especially easy. And make sure you get in the habit of toting your own bag for all kinds of shopping expeditions, not just groceries.

When you're caught without your own bag:

Chose whichever bag -- plastic or paper -- you are most likely to recycle.

Use as few bags as necessary. Buy less, pack each bag more fully, don't double bag.

Skip the bag altogether when you have only an item or two to carry.

When you get the paper or plastic bag home, make sure you reuse it: for lining trash cans and diaper pails, for packing materials, composting (paper), craft projects and wrapping paper (paper). Re-use it on your next shopping trip. Or take it to a nearby Goodwill or consignment shop that can reuse bags.

Learn More

Learn more from these sources:

[Institute for Lifecycle Assessment, October 28, 2004.](#)

[Paper or plastic? The Environmental Literary Council](#)

[Paper vs. plastic -- The shopping bag debate](#)

[Plastic Recycling Directory](#)

[The ULS Report, REVIEW OF LIFE CYCLE DATA RELATING TO DISPOSABLE, COMPOSTABLE, BIODEGRADABLE, AND REUSABLE GROCERY BAGS, 2007](#)

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