

Creating an Eco-Friendly Kitchen

A big part of living lightly and sustainably is our kitchen habits—both in terms of what we eat, how its packaged and how much waste we create. Learn the best practices for creating eco-friendly meals and lifestyle habits.

By Christine Liu



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Today's agriculture and food industry is capable of producing enough food for every human being on the planet, producing 17 percent more calories per person compared to thirty years ago despite the growing population. However, the modernization of our farming industry required to meet these demands continues to have lasting and serious negative effects on our environment.

On a factory farm with 35,000 pigs for example, over 4 million pounds of waste will be generated annually—the management and removal of this waste can cause air, soil, and water pollution. The manure may also include growth hormones and heavy metals from animal feed, which can be released into our ecosystems when not properly handled. Heavy machinery contributes to air pollution and due to intensive crop growing processes, industrial farms also heavily contribute to soil erosion. The widespread use of pesticides has caused a massive global decline in bee and other pollinator populations, threatening the

future of many fruit and vegetable crops that are dependent on pollinators.

Farms must generate their products quickly and efficiently—much like other consumer industries, which have an increasingly shorter ‘time-to-market’ cycles—often sacrificing quality for quantity. Studies show that today's food is missing 10–25 percent of its vitamins and minerals compared to historic, lower-yield equivalents. We all need these nutrients for our bodies to function properly and be healthy, yet our modern day food industry is providing less nutrient-dense, processed foods that in turn force us to eat more in order to meet our nutritional needs.

In the past fifty years, only a certain number of farms were able to meet the demands of the world's industrial food supply. Fewer farms resulted in a much more vast and complex distribution footprint—a typical carrot travels 1,838 miles to reach the dinner table, and about 11 percent of food's manufacturing emissions come from transportation.

With all this in mind, there is no denying that our relationship and consumption of food needs to change. Large supermarkets, suppliers and our government need to step up. In the meantime, we can vote with our wallets and look for more sustainable, nutritious food options, and be kinder to the planet as well as our bodies.

Small Scale, Sustainable Food

The good news is that sustainable food production does exist today—it is often found at a regional level and has much less intensive production practices compared to industrial food production. Local farms produce lower quantities of food that are sufficient to meet the demand of immediate communities, and so are able to focus on growing higher quality, healthier foods. Sustainable farmers also take additional care to seek growing practices that are natural and suitable for their farmland. They are able to use less or no pesticides and chemicals, and avoid common industrial

farming practices that degrade the surrounding environment and food's nutritional value.

Choosing organic will ensure that your produce has been grown with reduced greenhouse gas emissions, and only a few natural pesticides, protecting pollinators and benefiting wildlife. Research has shown that organic crops are significantly more nutritious than non-organic, containing more antioxidants.

To find these regional farms, opt to shop at your local farmers market or find a food program that connects you more closely to your farmer. These local food sources offer fresher options compared to conventional supermarkets, as produce and food is harvested from only a short distance away—and even better, it will taste better! Farmers' markets are typically organized by a public municipality and are held in a public space on a weekly basis. If you're lucky, the farmers' market will last year round, offering a changing variety of seasonal produce. An added bonus is that

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the vegetables are less likely to be packaged in plastic. Local food services are also emerging, with local farms distributing food boxes to community hubs for pick up on a weekly basis, or offering delivery services right to your front door.

However, not all of us have the luxury of a farmers' market, or access to sustainable food options. If this is the case, understand what is seasonal in your geographical area and opt for those foods at your supermarket. Every type of produce has a peak harvest during the year, when its flavor is at its richest. There is a higher likelihood that seasonal produce is grown naturally, without the need for extra chemical fertilizers or added energy to heat a greenhouse. In contrast, non-seasonal foods are usually flown in from areas with warmer climates, adding not only carbon emissions due to extra logistics, but also raising the price of your grocery bill due to the increased

transport cost.

Alternative Protein Sources

The overall footprint of your diet can be cut in half by opting for plant-based foods, which boast not only environmental benefits, but health benefits too. With the number of obese adults on the rise globally—doubling since 1980—and the number affected by diabetes also quadrupling, medical studies are pointing towards meat and high-fat dairy products as the source. Eating a balanced diet with more fruit, vegetables and alternative proteins can help you avoid the cholesterol and unhealthy fats that come with eating excess animal products. Make sure to stock up some of these healthy options the next time you go grocery shopping, and be on the lookout for even more plant-based options in your local area.



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1. Tofu

Just 110 grams (4 oz) of tofu provides ten grams of protein, as well as a good dose of calcium and iron. It’s great baked, mixed into a stir fry, or put into an Asian-inspired soup. Try looking in Asian food stores for freshly made tofu without the plastic packaging.

2. Lentils

Usually found in curries and stews, lentils are a great go-to for protein. They can be cooked quickly in fifteen to twenty minutes in boiling water. Each 100 grams (3½ oz) is packed with 9 grams of protein, plenty of potassium, vitamin B-6, magnesium, and iron.

3. Beans

There are many different types of bean, ranging from black, pinto, kidney, or garbanzo. Beans are also packed with protein, magnesium, and iron, and are a great meat substitute for hearty burgers and stews. Swap out a meat-based burger for a scrumptiously seasoned black bean burger.

4. Nuts

Nuts are another great source of healthy fats and proteins. Whether raw or toasted, they work great as a topping for main meals, as an addition to a snack mix, or blended to make a creamy nut milk.

5. Vegetables

Beyond legumes, remember that other vegetables can also provide a good amount of protein. Kale, corn, peas, and broccoli are a few protein-packed vegetables that are nutrient-dense. Make sure to include more of these for a balanced and energizing plant-based meal.

Food Waste

On an annual basis, one third of the world’s food is wasted, amounting to 1.3 billion tons of produce valued at 400 billion US dollars. The food wasted in farms, stores and households is enough to feed 870 million hungry people on the planet, posing a serious social problem. However, food wastage includes

not only the product itself, but also the time, water, land and human resources used (and wasted) in its production. Food that is produced and left uneaten has an environmental impact encompassing 3.3 billion tons of CO2 emissions, 250 cubic kilometers of water (3 times the size of Lake Geneva in Switzerland), and 1.4 billion hectares of land. As our planet’s resources continue to diminish due to our overconsumption, more countries are pointing towards the reduction of food waste as a preventative measure.

Beyond the emissions needed to grow and ship food products to consumers, their disposal also adds to their emissions. Contrary to popular belief, food and organic waste sent to landfills throughout the world actually has trouble decomposing. Large compacting vehicles fill landfills with as much trash as possible, leaving little room for oxygen or light to interact with the contents. Because of this the organic materials struggle to decompose naturally in an aerobic manner, and instead decompose anaerobically with meth-

ane-producing bacteria. Anaerobic decomposition of our organic waste is detrimental when it comes to climate change as it produces methane which is twenty-three times more effective than CO2 at trapping heat in our atmosphere.

In the next sections, you will learn that food waste can be combatted within the grocery shop. Our shops are full of so many foods and delicious options that we often buy more than needed. How we store our food can also help us reduce our waste, since the better stored it is, the longer it will last. But when food does spoil, there are some methods we will explore to help compost the organic material at home, so you can at least get those nutrients back into your own soil, rather than landfill.

Going Shopping

Various regulations in the food industry exist to ensure that food is safe and of good quality, yet some of these standards can be major causes of food waste. One of the most frustrating reasons food is wasted is due to cosmet-



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ic flaws. If the product doesn't fit its cookie cutter packaging, or if it has unusual protrusions, colors and scars (otherwise known as organic variations), it is not considered appealing enough and is often thrown away. Supermarkets cultivate pristine displays of fresh, identical-looking produce with little deformities in order to lure in their customers, rejecting 'inferior' specimens altogether. As a result, farmers have started to throw these out straight away.

An encouraging response to this is the 'ugly food' movement, which has been growing in various countries around the world. Local markets and organizations are salvaging food that would otherwise be wasted due to its cosmetic appearance. It is likely that these will be well promoted in your local shop (if it's taking part), but if not, or your local supermarket hasn't quite caught on to the movement, simply consider picking up some single, lonely bananas which may not

be considered by the average consumer—it's highly likely these will be left by other customers and subsequently thrown out at the end of the day. It may look peculiar, but it's sure to taste exactly the same. In addition, if you're nearing the end of a farmers' market and notice that vendors are already starting to toss out withering food, offer to take some items that you know you can cook up soon. It's likely they'll sell them to you at reduced price, too.

Back at home, it is estimated that families in the UK and US waste approximately 1,500 US dollars in food per year. This could be caused by several factors, including buying too much food, taking 'best by' dates on food packaging too literally, or forgetting to manage leftovers in the fridge. Whatever the reason, there is room for improvement in every household to more efficiently manage your food intake, and reduce the amount that's going into the waste bin.

- » Keep in mind how much you purchase, and think critically about your shopping process; only shop for what you need.
- » Prioritize eating leftovers before they spoil, and be on the lookout for fresher items in your fridge that are likely to go off more quickly. For items that have passed their expiry date, the term 'use by' indicates a safety concern (associated with the development of unwanted bacteria, more commonly associated with meat and dairy products), while 'best before' implies that the food is still okay to eat after the date, but just may not taste as great. When in doubt, eat your food quickly, or host an impromptu dinner party so your friends can help you out!

Tips for Storing Food

An incredibly simple thing you can do at home to help combat food waste is to prop-

erly pack and store your food. Perishable food groups like fruit and vegetables are some of the highest offenders when it comes to waste, largely because they're so tricky to keep fresh, but taking the following steps can help keep your personal waste to a minimum.

After a trip to the farmers' market or the grocery store, begin to separate your fruits and vegetables. Fruits emit ethylene gas, the ripening agent which causes other produce to spoil more quickly. If your fruits need to ripen further (think avocados, lemons, mangoes, or bananas) just leave them on the side, or bury them in uncooked rice (a handy hack). A container of rice will make the ethylene gas stick around a bit longer, promoting ripening—working in much the same way that brown paper bags or newspaper wrappings do. And don't worry about spoiling your rice, it will be fine (unless you forget about the fruit altogether!). All other fruits, especially juicy citrus fruits, peaches, berries, and grapes

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should be left in the fridge, and stored in a dry container with enough space and room to breathe to avoid bruising.

Reusable cotton mesh bags or towels are wonderful to help wick moisture and keep produce dry. Moisture is one of the main spoiling agents, and ventilating your vegetables while keeping them dry is one of the best ways to keep them from spoiling. Mushrooms, for example, should be left loose and dry. Taking off rubber bands and twist ties and rolling up leafy greens loosely in tea towels is also a great way to keep greens fresher and lasting longer.

Carrots, celery, and fresh herbs last twice as long when stored in jars of water in the fridge. Filling the jar full with fresh water and refreshing the water every few days keeps carrots and celery crunchy, and herbs perked up for longer than usual.

Root vegetables such as potatoes, beetroot, onions and garlic can be stored in a dry, cool place with little light. If they are beginning to

ripen too quickly or sprout, they can also be placed in the fridge.

If you notice that your fresh foods are beginning to spoil, cooking them right away will help to preserve them, even if you're not ready to eat them just yet. Adding salt and seasonings will naturally reduce the amount of fresh moisture, which is the main cause of spoiling. In general, any cooked foods should be placed in sealed containers to help remove extra oxygen. Having a range of tupperware sizes, or a variety of bowl sizes and some reusable beeswax wraps is particularly helpful. Make sure the seal is as tight as possible with little air flow.

If you are unable to eat all your food at that moment, freezing leftovers in glass jars or metal containers is great—avoid plastic as it can leach into your foods. When packing foods to be frozen in glass, opt for wide mouth jars that have larger openings and not as much of a shoulder. Make sure to not fill the jar all the way to the top—some jars have ‘max fill’ lines



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to indicate how full it should be, as foods expand when frozen and could cause your glass jar to break (this is most common with soups and liquids).

Packaging Waste

Today's grocery shops are commonly filled with products wrapped in packaging. Packaging's primary purpose throughout history was to contain and protect products during transportation, but it has since extended to cater for convenience—customers like to grab pre-prepared meals and snacks on the go, which of course need to be contained in a lightweight, accessible package. As a result, packaging materials have seen advanced technological developments; new synthetic materials and blends such as metallized plastic films (for crisp packets), multi-layered cartons and lightweight packaging solutions were created, all in an effort to more effectively preserve and package foods in a conve-

nient manner.

Yet with the increased use of industrial plastic packaging came the issue of packaging waste. Ever since the mass production of plastics, there has been an increase in plastic litter as well as a growing mass of non-degradable packaging in landfills. With the lack of end-of-life options for many of these new types of packaging, 91 percent of plastics today are not recycled, and will either end up forever in a landfill or as litter. Due to the increase of lightweight, flexible plastic packaging, wrappers and bags can be easily swept away by the wind, ending up in wild habitats, forests, or waterways and oceans.

In addition, the chemical processes used to manufacture plastics pose many health concerns. The additives put into plastic polymers in order to achieve certain properties have been found to leach toxins, carcinogens, and endocrine disruptors. Even plastics that are thrown into landfills or littered can leach

toxins into local water sources and ecosystems, and if incineration is used as an alternative to landfills, their burning can release even more harmful and toxic fumes into the atmosphere.

Though packaging is not always painted in a positive light, it is actually near and dear to my heart, because I studied it for four years at my undergraduate university. It was during my degree that I became aware of the issue of plastic packaging waste, and began taking steps to decrease my personal packaging consumption a few years ago. This next section contains various tips and best practices for waste free grocery shopping, as well as important information regarding packaging recyclability.

Preparing for a Package-Free Grocery Trip

There are several ways to avoid excess packaging in your next grocery haul. Keeping the

following items in your bag can prove to be very useful:

Reusable Jars and Containers

These can be used at the bulk dry goods section of your local shop (look online to find the one nearest to you). The shop will deduct the weight of your container when purchasing, so be sure to label the lid of the container with the empty weight before you fill up. Some local butchers, bakeries or deli counters can also place meat, seafood, cheeses, etc. into a container for you. Instead of using several plastic bags, kindly ask the employee to put the product straight into your clean, dry container after weighing.

Reusable Cotton Bags and Large Grocery Bags

If your local shop doesn't have a system for deducting the weight of your container, consider using a reusable cotton bag for loose



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dry goods. Reusable produce bags are great for storing small, loose fruits and vegetables, avoiding the need for the lightweight plastic variety (the kind often ingested by sea creatures such as turtles when they are mistaken for jellyfish). Also don't forget to bring a few reusable grocery bags to carry your other food home!

Packaging Recyclability

If you need to purchase packaged items, there are a few things to keep in mind. First, opt for bulk quantities of product in recyclable packaging where possible. Packaging products in larger quantities is more efficient in comparison to small, individualized packages. Second, in terms of packaging material, paper, metal, and glass are the best options, but note that these materials have their various environmental impacts (see below). Determine what options are most easily recycled in your locality, and choose materials that are more likely to be recycled than not.

Paper is natural and compostable, but production can be energy and water intensive.

Metal boasts easy recyclability in many municipalities, but its extraction requires quite a bit of energy.

Glass is a great, durable material with accessible recycling options, although it takes quite a lot of energy to recycle due to its high melting temperature.

In some instances, plastic packaging may be unavoidable. Usually all plastic packages or products are labeled with resin identification codes which indicate the type of plastic it is. These identification symbols are triangular arrows with a number in the middle, and can often be found on the bottom of plastic bottles. The following plastic resins are common for most packages and products, some with easier recyclability than others.

Plastic #1 is polyethylene terephthalate (PET), commonly used to make plastic soda drink bottles. This is the most common and widely recycled plastic resin.

Plastic #2 is high-density polyethylene plastic (HDPE), used for heavier products such as laundry detergent packaging, shampoo, or motor oil. This plastic is also widely recycled.

Plastic #3 is polyvinyl chloride (PVC), used for plastic pipes and medical tubing. PVC is not widely recycled but you can check for local recycling facilities in your area.

Plastic #4 is low-density polyethylene (LDPE), manufactured for plastic bags and flexible plastic films. LDPE has not been highly recycled previously, but drop off locations at some grocery and retail are becoming more common.

Plastic #5 polypropylene (PP) is often used for

microwavable food packaging, and also plastic caps. This plastic is highly recycled.

Plastic #6 is polystyrene (PS), often known as Styrofoam. Polystyrene can be found in packaging as a cushioning solution, or for single use cups and food trays. This plastic is not often recycled and will go straight to landfill. However increasing efforts are being made to establish polystyrene recycling centers, so be on the lookout.

Plastic #7 is any other plastic blend. Some of the plastics included may be compostable plastics such as PLA, or multi-layer plastic film, which is often combined with metals for barrier properties. Due to their blended nature (the materials are difficult to separate), they are not easily recyclable. It doesn't hurt to contact the manufacturer to ask about potential recycling options though.



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