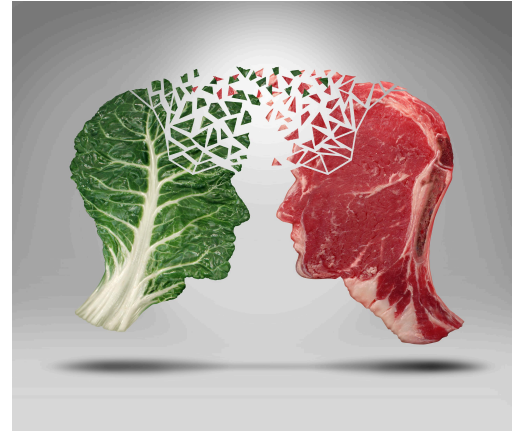




# Evolving Our Eating from Animals to Plants

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credit: The Conversation

The way we choose and acquire food today is very different from what it was 2.5 million years ago, let alone what it was just 10 years ago.

Science has advanced agriculture and the food industry greatly. For example, techniques such as cross-breeding, hybridization, and genetic modification have led to crops that are disease-resistant and higher-yielding. The scientific discoveries around this time and into the 20th century provided incredible insight into how to best produce crops, not only for preference but also to provide food to billions more people. With the [first plant genome sequenced in 2000](#) and [CRISPR technology introduced in 2012](#), the possibilities for genetically engineering plants and animals are seemingly endless.

For most of the last 2 million years, a [recent study](#) found that humans were “hypercarnivores.” [As much as 70% of their diet was meat](#). It was only very recently that we began to eat more plants.

What might the future of eating look like? Only time will tell, but our current eating habits suggest a shift towards a more plant based diet to minimize harmful environmental impact and for the longevity of our species.

## What We Eat Impacts the Environment

The pressure of climate change is encouraging us to eat in more sustainable ways.

Today, the production of meat by raising livestock contributes to around [18% of the total greenhouse emissions](#). This makes the livestock industry the largest anthropogenic contributor to climate change, greater than all of the transportation sector combined. It is a very resource-intensive operation.

Agriculture takes up about 43% of the world’s arable land and more than [80% of farmable land](#) is used for livestock. A diet that contains meat takes a great toll on the land. For instance, [per pound](#), it takes about 219 gallons of water for tofu, 477 gallons for eggs, 896 gallons for cheese, and 2,463 gallons for beef. Furthermore, according to a [recent study](#), even those animal products considered to have the lowest environmental impact still exceed the resource usage of vegetable substitutes.

This is the main reason why I adopted a vegan diet. This has led to an increased demand for products our ancestors would have never dreamed of.

## Impossible Meat

Companies are now creating new sorts of meat substitutes and dairy alternatives. Most of these alternatives are quite different from the meat products they replace. Enter [Impossible Foods](#).

Impossible Foods has created many meat alternatives such as burgers, sausage, and chicken products, with a mission to reduce our carbon footprint and help save the planet. The Impossible Burger has received enough traction, so much so that larger restaurant chains are including it in their menu. [The Cheesecake Factory](#) has an Impossible Burger on their menu, and [Burger King](#) offers an Impossible Whopper.

What else makes the Impossible Burger so popular? How does a product like this even contend with the popular meat options on menus and in stores?



Lamba kofka made from impossible meat at a the [Never Blue](#) restaurant.

Turns out, [the answer is heme](#). Heme is an iron-holding molecule primarily found in the blood of humans and animals. Heme plays an [important role](#) in the transport and release of oxygen throughout an organism's body, as well as the production of energy through the process of oxidative phosphorylation. Heme also gives meat a distinct flavor.

Though the primary source of heme is the blood of humans and animals, there is some heme found in certain plant sources, in particular, the soybean. The [heme of the Impossible Burger is created](#) by extracting DNA from soybean roots and inserting it into a genetically-modified yeast. The yeast then produces the heme.

This heme is then [mixed with other ingredients](#), like soy, potatoes, oils, vitamins, minerals, and specific binders, to create the Impossible Burger. The [ingredients and nutrition facts](#) for the Impossible Burger make it an impressive substitute for meat burgers.

## Petri Dishes

Another contender, though not plant-based, is [EatJust and its cultured chicken nuggets](#). This company has found a way to create real, meat-based chicken nuggets in the laboratory. EatJust states that its cultured chicken nuggets help to reduce the spread of disease, deforestation, and resource use.

While plant-based options boast similar benefits, this product is actually made with real chicken meat. The [production of this meat](#) involves isolating a single cell from a chicken, and growing it in cell culture, yielding "minced meat" within about 14 days.

## The Future of Eating

From lab grown meat to vegetable burgers that look and taste like meat, the way we eat and acquire food from our environment is changing.

There is no denying that the meat and dairy industry employ and feed billions of people, and are crucial to the livelihood of poor

communities. In 2009, it was estimated that the livestock industry provided jobs for more than 1.3 billion people worldwide while also providing food for millions of people. A [2017 Los Angeles Times](#) article further outlined the importance of the livestock industry to poor communities emphasizing its benefits and necessities to people and the economy.

Can the vegetarian food industry match this level of production? Can we strike a balance between employment and sustainability in the shift to a more plant-based way of eating? Additionally, how can we make it so that these vegan/vegetarian options are available and affordable for everyone?

For now most plant-based products on the market are much more expensive than their meat counterparts. At a common grocery store, ground beef burgers cost \$1.25 per patty, but an Impossible Foods burger patty costs \$3.00 per patty. That is more than two times the cost. But [costs are coming down](#). Perhaps in time there will not be much of a difference.

According to a [2017 report](#), 6% of US consumers claim to be vegan, a large increase from just 1% in 2014. With the availability of new products and the increased pressure of climate change, this number is projected to increase.

Food and access to it is a human right. The earth and its resources belong to each and every one of us. How we acquire and consume food has changed over the course of our history and continues to change as we look towards the future. How we adapt to the increasing pressures of climate change as well as consumer demand will shape the way we eat for years to come.

Will we continue in a shift towards more plant-based products? Will these products ever reach a level of demand comparable to real meat products? If so, how do we ensure equality and accessibility of these foods to all peoples?

In the grand scheme of our existence, the jump from hunting and gathering to producing our own lab-grown meat has been quite the leap. Where will we go from here?

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