

GENETICALLY MODIFIED ORGANISMS

Food Fight: GMO's and the future of the American Diet. By McKay Jenkins. 2017. Avery. (ISBN: 9781594634604). 322 Pages. Hardcover \$26.00.

McKay Jenkins has traveled across the country interviewing people about where our food comes from and the impact modern agricultural practices have on the quality of the food we eat as well as the impact these practices have on our health and quality of life. The people he interviews tell stories that provide important information about what is being done to feed a nation and a world with a growing population. He writes of ecofriendly innovations and technologies that we can easily support, but some of the stories expose the innovations and technologies that are less understood and sometimes scary for the public when people become aware of these practices.

While the book uses GMO's as a focal point in the title and as a reoccurring theme in the book, the author focuses the majority of his writing on modern industrial farming practices. These include the questionable use of chemicals to grow our food and the shift in the American diet from eating whole foods to processed foods. The author provides a thoughtful and important look at where our food comes from and the impact of our diet choices. He provides compelling reasons why the overuse of chemicals in food production and industrial agricultural practices are harming our health and our environment.

Unfortunately, the topic of GMO's is not covered in an unbiased manner as Jenkins promises in his introductory remarks. For example, early

in the book the author quotes a scientist by writing "There are over a thousand journal articles that collectively say that the risks (from GMO's) are exceedingly low from the standpoint of comparison to all alternatives." Jenkins then points out that this is the majority view by all scientist who work with GMO's. As a counter to the "thousands" of journal articles Jenkins then presents a single 31-day study "that showed that eating GM corn causes abnormalities in the digestive tract of pigs." This is the only scientific study he seems to have found that show a potential negative affect. He uses this one study to suggest that symptoms like "headaches, stomachaches, allergic reactions, changes in the way our immune system functions, microscope changes in the structure and function of our cells – may be cause by GMO's." Jenkins uses this list of vague ailments to scare readers with unsubstantiated speculation that GMO's *could* be the cause of these ailment.

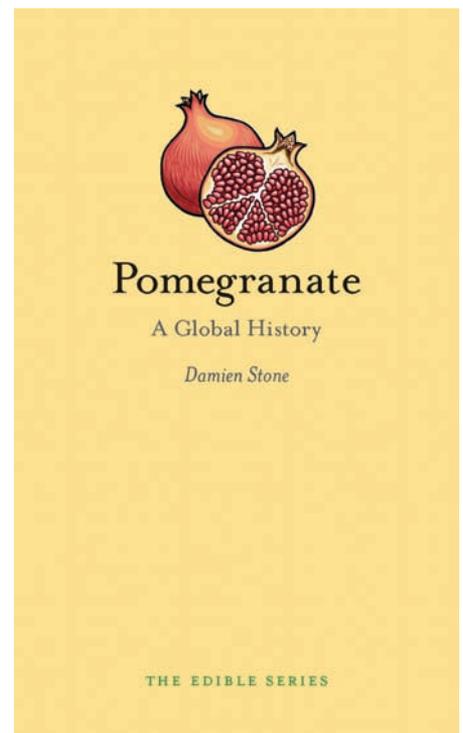
As the book continues the author never provides a compelling example of proven harm from ingesting GMO's even though GMO foods have been part of our diet for over 25 years. The book does however provide examples of how GM technology is used to solve agricultural problems. Among the examples is the story of how ring-spot virus was eliminated in papaya thus saving the Hawaiian papaya industry. He writes about how a cassava mosaic virus was stopped by creating virus resistant GM plants thereby saving an essential African food staple. Therefore, after providing weak scientific evidence about the dangers of GMO's and writing about many examples of how GMO's can be used to improve food production, it is perplexing that an underlying theme of the book is that GMO technology is harmful.

A justifiable objection the author makes against the use of GM technology is how it is used to make herbicide resistant crops and how this has led to the alarming overuse of toxic chemicals. In his discussion of these chemicals the author makes important points that readers should consider. Could these toxic chemicals be having an impact on our health and on the environment? Unfortunately, the author believes that GMO's are a major reason for the growing use of these chemicals, when in fact these chemical, or others similar chemical, were being used before GMO's were introduced and would still be used without GMO's. The author even provides examples of how GMO's can reduce the need for chemical use. But his suggestion that GMO technology is the leading reason for using chemicals on crops is a false assumption. It is like saying that since some trucks are used to transport illegal cargo then no trucks should be manufactured. GM technology has a much wider use then enabling the use of harmful chemicals on our foods. Why condemn a

powerful technology that has the potential to improve what we eat and to solve problems in our food production just because there are ways that the technology can be misused? It would have been a better book had the author provided an unbiased discussion of GM technologies.



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SPECIAL INTEREST

Pomegranate – A Global History. By Damien Stone, 2017. Reaktion Books (ISBN: 9781780237497). Hardcover. \$14.49.

The fascination and love of pomegranates goes back at least to the beginnings of human history. The plant was first domesticated during the Neolithic period about 12,000 years ago and carbonized pomegranate seeds have been excavated at Middle Eastern sites.

Botanically, the pomegranate is classified as a berry. The plants are capable of self-pollination, but cross-pollination produces a significantly higher fruit yield. The trees grow best in arid conditions and underground stems (xylopodes) can store nutrients that are available to replenish the plant following harsh environmental circumstances. The edible parts of the fruit are the seeds, covered with a blood-red,

juicy, sweet-sour flesh. When the fruit is ripe, the rinds split open, releasing and distributing seeds. Besides eating, the fruit has other uses. Pomegranate rinds have been used to tan leather; flowers produce a red dye, and roots a black dye. Pomegranate trees are usable for only about 15 years. The author even includes instructions on how to eat a pomegranate.

In folk medicine, pomegranates were used for treating wounds, pain relief, and helping with diabetes, headaches, heart disease, ulcers, depression and many other medical needs.

Today, the juice of the best known pomegranate variety, "Wonderful," has been shown to be high in anti-oxidants, dietary fiber, and vitamins. It has anti-cancer and anti-HIV properties. It is commonly found in a variety of foods such as ice cream, jellies, salad dressings, soft drinks and many others. The cosmetics industry uses pomegranate in skin care products because of its sun-protection, anti-aging, and anti-inflammatory properties.

Pomegranates are cultivated in many countries including the United States, with California one of the major producers. Interestingly, for many countries the tasty fruit is a source of national pride more as a cultural symbol than for its economic value.

Pomegranates are significant in the mythology of several cultures. The book follows the importance of these fruits in complex, fascinating stories of mythical gods, changing of seasons, secret rituals, masculinity and femininity, and wars. Probably because of the blood red color, the pomegranate often turns up in mentions of blood functions and bloodshed. Pomegranates are found in many of the tales of the Arabian Nights. Other fairy tales from places such as Turkey and Iran feature the fruit in sexually-charged stories of royalty, romance and weddings.

In ancient Mesopotamia, Egypt, and other near eastern countries, the pomegranate appears in literature in the form of narratives, some of whose texts are sexual allegories. An Egyptian papyrus recommends the use of pomegranates to manage tapeworms. This may have been a fairly effective treatment since the fruit's alkaline quality would paralyze the tapeworm's nervous system. A cuneiform document reveals an account of using pomegranates for paying rent. Pomegranates are also found in much of the region's art. Historical, religious and symbolic activities are seen in seals, friezes, vases, plates, and other creations featuring pomegranates.

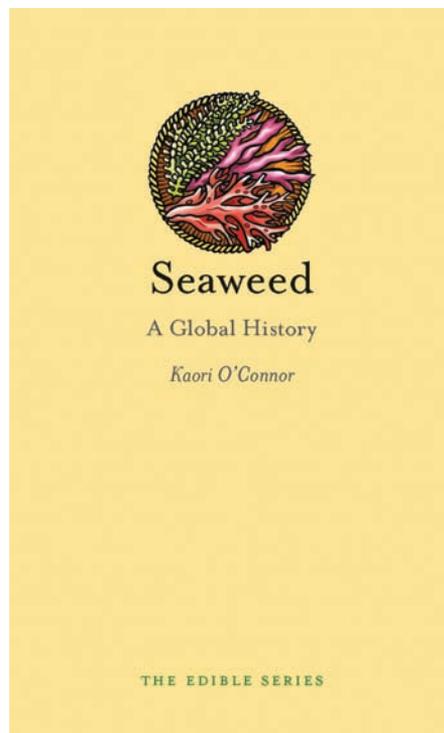
Jewish tradition teaches that the pomegranate is a symbol of righteousness, knowledge, and wisdom. Torah scrolls are usually decorated with a pair of pomegranate-shaped finials. Islamic tradition teaches that people eating pomegranates have hearts filled with light, making them free from sin and able to resist Satan's temptations.

Many more examples of the pomegranate in history and culture are explained in detail in this book. Even today, pomegranates show up in many cultures. In Azerbaijan, the people hold an annual pomegranate fair that features many events including a pomegranate eating contest. In Iran, the "ruby from paradise" is celebrated with festivities including art displays and pomegranate dances. In American pop culture, singer Katy Perry uses a pomegranate for lipstick in a music video and singer Adam Lambert's video for "Better Than I Know Myself" shows him crushing a pomegranate with spewing juice coming from his hand.

Though limited in the biological features and heavy on the historic and cultural aspects of pomegranates, the short captivating book is fun to read and is beautifully illustrated with colorful photographs. It is part of a large book series called "Edible," published by Reaktion Books. Special features are an extensive listing of pomegranate cultivars and a selection of historical and modern recipes for the fruit. The narrative is thoroughly researched, featuring a comprehensive list of references. It also contains a list of print and online resources and a modest index.



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Seaweed – A Global History. By Kaori O'Connor, 2017. Reaktion Books (ISBN: 9781780237534). Hardcover. \$14.49.

Seventy-one percent of the earth's surface is covered by oceans. In all of those oceans are a variety of marine algae, better known as seaweeds. Categorized in three color groups - red, brown, and green - they are not completely classified and their diversity is not fully understood. There are believed to be about 10,000 kinds and "they are essential to the life of the planet," with 75% of the oxygen we breathe being supplied by marine algae.

Seaweeds are significant in the history and culture of numerous countries, with some references going back thousands of years. They appear in the *Epic of Gilgamesh*, where Gilgamesh weighted himself down with stones to reach the bottom of the sea where he secured a plant (seaweed) that he believed would make people immortal. But the seaweed was stolen and consumed by a snake, which now can shed its skin and grow a new one. People can't do this, so they must die because Gilgamesh lost the seaweed.

Ancient Greek societies were suspicious of the ocean and feared seaweed. The Greek sea god, Pontus, was portrayed with hair consisting of seaweeds that trapped and drowned sailors. But not all Greeks feared seaweed. Pliny the Elder wrote that seaweed applied to the body could relieve gout and lessen ankle pain and swelling. Ninth century Arab physicians also used seaweeds medicinally to treat cancer, cirrhosis, kidney problems, arthritis, hemorrhoids and other conditions. Arabs also covered their ships with a non-flammable brown seaweed extract, thus saving the ships from being burned by enemies.

In Japan, seaweeds are considered "our way of eating." Some people eat seaweed at every meal, with the most popular species being wakame, nori, and kombu. Ancient Japanese poetry is filled with references to seaweed. In China, use of seaweed started historically as a medicine. A complex system, *Huangdi Neijing* (Classic of Internal Medicine), has changed greatly since its origin about 200BC. The author of *Seaweed* provides an interesting explanation of normal health and how medicines, including seaweed, are used to treat illness in this complicated system. Additionally, a table provides a description of the "Eight Main Methods used to Prepare Seaweed in China."

The examples given are just a few of the fascinating stories about seaweed in this book. Other interesting accounts include ways that seaweeds impacted history and culture, e.g. When Columbus crossed the Atlantic Ocean in 1492, 23 days of his 35 day voyage were spent in the Sargasso Sea, where the "floating seaweed was so thick it