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Journal of Thoracic Disease and Cardiothoracic Surgery
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Review Article

Organic Foods: Health Benefits and Drawbacks

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Received date: July 02, 2025; Accepted date: July 15, 2025; Published date: July 25, 2025

Citation: Iyevhobu KO, Ken-Iyevhobu BA, Asibor E, Obohwemu KO, Oseni DI, et al, (2025), Organic Foods: Health Benefits and Drawbacks, *J Thoracic Disease and Cardiothoracic Surgery*, 6(4); **DOI:10.31579/2693-2156/138**

Abstract

Organic food is the product of a farming system which avoids the use of man-made fertilisers, pesticides; growth regulators and livestock feed additives. Put simply, organic foods are produced using methods that comply with organic farming standards, most crucially by avoiding the use of man-made fertilisers or pesticides. For a food to be classed as organic, at least 95 % of its ingredients must have been produced using organically farmed plants or animals. Organic foods are not necessarily completely chemical free, but the pesticide residues will be considerably lower than those found in produce manufactured with synthetic chemicals. Organic foods are more costly to produce and as a result the prices to consumers are higher, with some organic options costing twice as much as their conventional counterparts. Organic food cannot be genetically altered in any way. Traditionally, changes to plants and livestock were accomplished through selective breeding techniques and hand pollination. These techniques are still certified organic. The food may be genetically modified food, or GM food, has been tampered with at the genetic level. Sometimes varieties of plants have been cross-bred to create hardier or tastier strains. GM seeds can be drought resistant or have higher yields. GM technology tampers with the work of Mother Nature and is therefore inorganic. Organic farming practices reduce pollution conserve water, reduce soil erosion, increase soil fertility, and use less energy. Farming without pesticides is also better for nearby organisms and small animals as well as humans who live close to or work on farms. Organically raised animals are not given antibiotics, growth hormones, or fed animal byproducts. The use of antibiotics in conventional meat production helps create antibiotic-resistant strains of bacteria. This means that when the living organism gets sick from these strains, they will be less responsive to antibiotic treatment. Organic foods should be the number food of consumption nationwide for everyone to harness its benefits.

Keywords: organic; food; gmo; fertilisers; nature

Introduction

The term “organic” refers to how certain foods are produced. Organic food, fresh or processed food produced by organic farming methods. Organic food is grown without the use of synthetic chemicals, artificial chemicals, hormones, such as human-made pesticides and fertilizers, and does not contain genetically modified organisms (GMOs) (Alavanja & Bonner, 2012). In order to be labelled organic, a food product must be free of artificial food additives. This includes artificial sweeteners, preservatives, coloring, flavoring, and monosodium glutamate (MSG). Organic foods are produced through farming practices that only use natural substances. This means avoiding all artificial chemicals, hormones, antibiotics, and GMOs. Organically grown crops may have less nitrate and more of certain vitamins, minerals, and antioxidants (Barański, 2014). Organic dairy products and meat may have more

omega-3 fatty acids. However, the evidence is mixed. Organic foods include fresh produce, meats, and dairy products as well as processed foods such as crackers, drinks, and frozen meals. The market for organic food has grown significantly since the late 20th century, becoming a multibillion-dollar industry with distinct production, processing, distribution, and retail systems (Prasad, 2021).

In general, organic means that food was grown or produced without the use of synthetic pesticides or fertilizers, without GMO ingredients, without chemical food additives or artificial food-ripening substances, and without irradiation. Meats labeled as organic must come from animals raised without hormones or antibiotics. Processed foods may be allowed to contain a small percentage of non-organic ingredients and still be labeled organic (in the United States, no more than 5% non-organic). Note, however, that organic fruits and vegetables may be grown with a certain usage of natural (non-synthetic) pesticides and natural fertilizers (Alavanja & Bonner, 2012). Animals raised for meat on organic farms may be treated briefly with antibiotics to manage disease.

Nowadays, consumers are concerned about health-related issues as well as nutrition (Burchi *et al.*, 2011). They have changed their dietary preferences as they started to look for fresh, nutritious and safe food; that is, without additives and preservatives. Food quality and safety are crucial for purchasing a product as an increased number of outbreaks associated with fresh produce have been observed in the last few years (European Food Safety Authority (EFSA), 2013). Therefore, more and more consumers turn to organic foods for a safer, healthier and environmentally friendly option (Shepherd *et al.*, 2005; Kongsom & Kongsom, 2016).

Organic foods are produced according to organic farming/agriculture and good farming practices (GAP) where products are produced/grown with natural processes and without the use of chemical synthetic fertilizers and pesticides (Bourn & Prescott, 2002). These practices often meet consumer's expectations for less processed and safer food. The demand for organically grown food has been increased in the last twenty-five years (Williams & Hammitt, 2001). Although the consumption of organically grown food is popular in developed countries, most of the organic farming areas are located in developing countries where awareness for organic food has also increased (Chakrabarti, 2010). Organic foods have grown increasingly popular over the last 2 decades. In fact, U.S. consumers spent $56 billion on organic produce in 2020. This number increased by nearly 13% from 2019, so their popularity does not seem to be slowing down. Some people think organic food is safer, healthier, and tastier than conventionally grown food. Others say it's better for the environment and the well-being of animals (Smith-Spangler, 2012).

Although organic food production began as an alternative farming method outside the mainstream, it eventually became divided between two distinct paths: (1) small-scale farms that may not be formally certified organic and thus depend on informed consumers who seek out local, fresh, organically grown foods; and (2) large-scale certified organic food (fresh and processed) that is typically transported large distances and is distributed through typical grocery store chains. If consumers know their local farmer and trust the farmer's production methods, they may not demand a certification label. On the other hand, organic food produced far away and shipped is more likely to require a certification label to promote consumer trust and to prevent fraud, which exemplifies how national certification regulations are most beneficial. The organic food market in the world has grown rapidly in the past decade. International trade in organic foods showed an annual growth rate of about 20–22% during this period. Many retail chains and supermarkets are accorded with green status to sell organic foods. The important organic products traded in the international market are dried fruits and nuts, processed fruits and vegetables, cocoa, spices, herbs, oil crops and derived products, sweeteners, dried leguminous products, meat, dairy products, alcoholic beverages, processed foods and fruit preparations, cotton, cut flowers, etc. The FAO provides support to organic farming and attempts the harmonization of national organic standards, which is essential to increase international trade in organic products (Kongsom & Kongsom, 2016).

Organic foods are minimally processed without artificial ingredients or synthetic preservatives to maintain the integrity of the product that began with practices on the farm. For example, the use of GMOs is prohibited during the production *and* processing of certified organic products (Kongsom & Kongsom, 2016). A rigorous certification process, including periodic testing, is required. Also, irradiation is prohibited in organic processing. Organic foods often have more beneficial nutrients, such as antioxidants, than their conventionally-grown counterparts and people with allergies to foods, chemicals, or preservatives may find their symptoms lessen or go away when they eat only organic foods (Barański, 2014).

Organic foods are more costly to produce and as a result the prices to consumers are higher, with some organic options costing twice as much as their conventional counterparts. As a general rule, consumers will not pay significantly higher prices unless they are driven by some clear motivation. As with so many other areas in our society, the access to organic food—and the ability to afford it—comes most easily to those with deeper pockets. This creates a dilemma for many businesses faced with a choice between organic and conventional alternatives. If they offer organic food options, they will incur greater costs and have to charge a higher price. Whether or not this is a smart, strategic decision is an issue that every company (and every consumer) will have to decide on a case–by-case basis.

One of the primary benefits of eating organic is lower levels of pesticides. However, despite popular belief, organic farms do use pesticides. The difference is that they only use naturally-derived pesticides, rather than the synthetic pesticides used on conventional commercial farms. Natural pesticides are believed to be less toxic, however, some have been found to have health risks. Organic agriculture, which is governed by strict government standards, requires that products bearing the organic label are produced without the use of toxic and persistent pesticides and synthetic nitrogen fertilizers, antibiotics, synthetic hormones, genetic engineering or other excluded practices, sewage sludge, or irradiation (Alavanja & Bonner, 2012).

Types of Organic Foods

Types of organic foods include fruit and vegetables, dried legumes, grains, meat and meat products, dairy foods, eggs, honey and some processed foods.

Organic Meat, Dairy, and Eggs: Unlike factory-farmed or "regular" meat, organic meat is raised without being injected with antibiotics and hormones. Organic beef is raised on a diet of grains, corn, and grazing on grass and they are not fed any GMOs or sewage sludge. The USDA requires that organic livestock is raised in a way that "accommodates their natural behaviors" so they are not confined to small spaces for long stretches of time (Davis *et al*., 2004).

Organic cow milk is the one which is produced from a cow that has been grown organically. That is a cow that has been reared with the right sunshine, water, food and other natural facilities. Such a cow is grown with organic food and is not given any synthetic insecticide (Petit *et al*., 2012). An organically grown cow is given medicines when needed, but no antibiotics or hormones etc. are given to increase milk. There is no difference in the number of calories, protein and calcium in both traditional and organic milk. According to research, organic milk has high amounts of omega-3 fatty acids and conjugated linoleic acid (CLA). This means that organic cow milk is slightly more beneficial to health than traditional milk (Alavanja & Bonner, 2012). Whenever possible, try to get organic meat and dairy products. Conventionally farmed livestock animals are often pumped with hormones and antibiotics and raised in inhumane conditions. In addition, organically raised meat and animal products tend to have more nutrients and higher amounts of healthy omega-3 fatty acids (Alavanja & Bonner, 2012).

Organic eggs mean eggs laid by chickens that have been reared in a healthy environment. Farms that lay organic chickens and eggs follow healthy habits, give organic food to chickens. In organic egg-farming, chickens are not kept in cages. They are given a place to move and are grown in a happy environment thus organic eggs are considered healthier than regular eggs (Alavanja & Bonner, 2012).

Organic Fruits and Vegetables: Non-organic or "regular" fruits and vegetables are often pumped with pesticides and may be genetically modified. Some fruits and vegetables hold more pesticides than others. If you are shopping on a budget, it is more important to get certain foods in organic form than others. Organic vegetables are grown in the field without any synthetic pesticides. The method of growing them is completely natural. However, according to a study, organic vegetables do not only give you more vitamins or minerals but are beneficial for your health to some extent (Alavanja & Bonner, 2012). Some fruits and vegetables that you should look for in organic options include cherry tomatoes, apples, spinach, peaches, nectarines, kale, collard greens, potatoes, grapes, cucumbers, strawberries, sweet bell peppers, celery, summer squash, and sweet peppers. These fruits and vegetables can hold a high number of pesticides if they're from conventional farms, so opt for organic as much as possible (Alavanja & Bonner, 2012).

Organic Bread: The materials used to make products such as bread are also grown organically. Not only this, but organic bread also excludes unhealthy elements such as artificial sweeteners and preservatives (Alavanja & Bonner, 2012).

The Dirty Dozen and Clean 15

The Environmental Working Group (EWG) releases two lists each year that help consumers decide which produce is best to buy organic (Clark & Tilman, 2017).

Dirty Dozen: The "dirty dozen" refers to the 12 fruits and vegetables that have the most pesticide residue when grown by conventional farmers. While all produce has to pass a legal limit for pesticide use, these fruits and vegetables should be prioritized when buying organic. Here is the Environmental Working Group's most recent dirty dozen list (Clark & Tilman, 2017):

1. Strawberries
2. Spinach
3. Kale, Collard & Mustard Greens
4. Nectarines
5. Apples
6. Grapes
7. Bell & Hot Peppers
8. Cherries
9. Peaches
10. Pears
11. Celery
12. Tomatoes

Clean 15: The Environmental Working Group also issues a "clean 15" list each year, which lists out the 15 fruits and vegetables with the least pesticide residue (Clark & Tilman, 2017). While they may contain some pesticides, they are generally considered lower priorities for buying organic. Many of them also have hard skins or rinds that provide protection from pesticide sprays (Alavanja & Bonner, 2012).

1. Avocados
2. Sweet corn
3. Pineapples
4. Onion
5. Papaya
6. Sweet Peas (frozen)
7. Asparagus
8. Honeydew Melon
9. Kiwi
10. Cabbage
11. Mushrooms
12. Cantaloupe
13. Mangoes
14. Watermelon
15. Sweet Potatoes

(Clark & Tilman, 2017)

Health Benefits of Organic Foods

Food is really important. That might seem obvious, but when you break it down you can really see just how pivotal our food is. We need it to have the energy to get out of bed each day, to keep our bodies fit, to feed our brains, and of course to enjoy great flavours (Barrett, 2006). Organic products reduce public health risks to farm workers, their families, and consumers by minimizing their exposure to toxic and persistent chemicals on the farm and in food, the soil in which they work and play, the air they breathe, and the water they drink (Kongsom & Kongsom, 2016). Children are especially vulnerable to pesticides. Thus, offering organic food and fiber products into the marketplace gives parents the option of choosing products produced without the use of these toxins (Liu & Schelar, 2012).

Nowadays organic products are being old in conventional supermarkets and specialty stores, and they contain numerous marketing claims, but only a few of them are being regulated and standardized. The biggest claims about organic food products is that they offer numerous health advantages and are also great for the environment (Kongsom & Kongsom, 2016; Gopalakrishnan, 2019). Not only does organic production help reduce public health risks, mounting evidence shows that food grown organically are rich in nutrients, such as Vitamin C, iron, magnesium, and phosphorus, with less exposure to nitrates and pesticide residues in organically grown fruits, vegetables, and grains when compared to conventionally grown products (Alavanja & Bonner, 2012).

Organic diets have been demonstrated with great success to expose consumers to less pesticides, which are linked to various diseases, like cancer (Lu, Toepel, Irish, Fenske, Barr & Bravo, 2006). Organic farming also has less of an environmental impact than conventional methods of farming. However, despite all that the evidence currently available doesn't support any meaningful nutritional benefits of eating organic foods over conventionally grown foods (Burchi et al., 2011). There is a lack of human studies that demonstrate the health benefits of organic diets or how it protects consumers against disease. The studies done have also not shown if organic diets cause any disease-promoting or detrimental effects when consumed (Lu et al., 2006).

The way food is raised or grown has a lasting impact on your emotional and mental health, along with the environment. Organic foods tend to have more nutrients that are beneficial, like antioxidants, than conventionally-grown foods (Barański, 2014). People, who have allergies to preservatives, chemicals, or food have noticed that consuming a diet of organic food has alleviated their symptoms as well. So, without further ado, let's check out some of the benefits of organic food below:

Organic produce has lesser pesticides: Chemicals like insecticides, herbicides, and fungicides are used commonly in conventional agriculture or farming methods (Petit et al., 2012). That means that the residues remain in the food that you are eating. Grains, vegetables and fruits that were labeled as organic are grown without using artificial fertilizers or synthetic pesticides. These chemicals although deemed safe in some quantities used in conventional farming are harmful if they are given repeated exposure or prolonged exposure. Studies have also found that pesticide residues can lead to ADHD prevalence, while they have also been linked to reduced sperm quality in men as well Chemicals such as synthetic fungicides, herbicides, and insecticides are widely used in conventional agriculture and residues remain on (and in) the food we eat (Petit et al., 2012).

Chemical pesticides consumption is linked to a variety of diseases and disorders namely cancers, digestive dysfunctions, headaches, ADHD, birth defects, weakened immune system, and even premature death (Kummeling et al., 2008). Organic foods are free of pesticides and that is why they are preferable for attaining a better overall health. As much as pesticides have the power of keeping certain pests away from the crops, they also have potent chemicals like organophosphorus (Alavanja & Bonner, 2012). These chemicals are unnatural and they are the mineral compounds that bring about several health abnormalities in humans. Organophosphorus, for instance, is associated with various developmental disorders such as ADHD and autism. Organic food products therefore offer a better healthy living, especially for children who are potentially affected by the pesticide toxins during their developmental ages (Barrett, 2006; Liu & Schelar, 2012).

Organic food is fresher: Organic food is better because it doesn't contain any preservatives that make it last longer, and organic product is always produced on small farms. Therefore, it is fresher and sold where it is grown. Organic produce is sometimes (but not always, so watch where it is from) produced on smaller farms nearer to where it is sold. Organic food products are guided by very strict standards of production, processing and preparation. Not at any time will you find chemical preservatives used in organic foods. As such, organic food is often fresher and full of flavor since it doesn't make use of preservatives to make it have a longer shelf life. Majority of organic food products are sold or availed locally next to where they are produced (Liu & Schelar, 2012).

Consumption of highly nutritious food products: Studies have shown small to moderate increases in some nutrients in organic produce. Organic produce may have more of certain antioxidants and types of flavonoids, which have antioxidant properties (Kummeling et al., 2008; Barański, 2014). Organic food products such as organic meat, organic milk, organic fish, and organic poultry contain very high nutritional content because they do not contain modified ingredients compared to the conventional agricultural food products (Burchi et al., 2011). Another factor that makes them highly nutritious is that they are given time to develop and are provided with the best natural conditions for growth. The vitamin and mineral contents of organic food products are always high as the soil life and health offers the most suitable mechanism for crops to access soil nutrients. Organic food is often fresher because it doesn't contain preservatives to make it last longer. Organic produce tends to be produced more locally and travel less distance to be sold (Liu & Schelar, 2012).

Organically raised animals are healthier: Another great thing about organic farming is that the livestock are raised in a healthier manner, since they aren't given any antibiotics, growth hormones or fed animal byproducts. Feeding livestock with animal byproducts also enhances the risk of mad cow disease (BSE), and using antibiotics creates antibiotic-resistant strains of bacteria, which can be harmful. Animals that are raised in an organic manner are given access to the outdoors and more space to move around, which helps them remain healthy (Liu & Schelar, 2012).

Consumption of higher quality meat and milk: Organic meat and milk is of the highest quality. There are claims that meat is not good for human health (Kummeling et al., 2008). However, it is the concentrated animal feeding operations (CAFOs) that normally worsen meat and milk quality by introducing foreign and unhealthy antibiotics as well as other drugs in the final food product. Organic food contains no hormones. Conventional farmers often pump livestock with hormones to produce more meat and milk quickly. The effects include an increased risk of cancer in humans who ingest hormone-laced meat and dairy. Organic farming increases soil health and fertility and reduces soil erosion.A European study in 2016 revealed that there are certain levels of nutrients, which include omega-3 fatty acids that are 50% higher in organic meat and milk than the standard versions. When you consume milk and meat that is organically produced, prepared and processed, you are guaranteed of products with higher quality vitamins and minerals. For instance, organic milk is proved to have 60% more omega-3 fatty acids, antioxidants, vitamins, and CLA than non-organic milk. Also, organic cows are pasture grazed which results in the better meat quality (Barański, 2014).

Organic food is GMO-free: Genetically engineered (GE) foods and Genetically Modified Organisms (GMO) are planting whose DNA has been changed in a manner that couldn't happen in nature or in natural crossbreeding. These plants are generally resistant to pesticides, and insecticides (Petit et al., 2012). Organic foods are GMO free, that is, they are not genetically engineered in nature. GMOs are increasingly common and are still being researched for long-term effects. Genetic engineering of food products is a huge concern in the current era. They are foods or plants with altered DNA in manners that do not take place in nature, usually to enhance resistance to pesticides/herbicides (Alavanja & Bonner, 2012). GMOs may pose health risks, causing toxic effects in the body, including hepatic, pancreatic, renal, or reproductive effects. While there is lack of conclusive evidence of its dangers, food safety advocates are concerned that long-term research has not been conducted to confirm their safety. Organic food is appealing for consumers, and organic farming is very profitable both as an ethical and healthy choice. Apart from ethics and money, organic farming practices may result in various benefits to the environment. The standard way of producing food isn't recommended, and there is scientific evidence that points to organic food production as being the best thing for the environment (Liu & Schelar, 2012). The food safety advocates believe GMOs are a leading cause of slowed brain growth, internal organ damage, gastrointestinal disorders, and the thickening of the digestive tract. Thus, the health benefit of consuming organic food is that they are free of GMOs, a very common component in non-organic foods (Liu & Schelar, 2012).

More heart-healthy omega-3 fatty acids: Eating organic products like milk and meat means that you have 50% more omega-3 fatty acids than if you consumed conventionally produced products (Kongsom & Kongsom, 2016). This was concluded in a study done in 2016 in the British Journal of Nutrition (Burchi et al., 2011). The study tested organic milk and found that it had less saturated fat than non-organic milk. This is mainly down to differences in how organic livestock are raised, since a grass-fed diet and spending more time outdoors resulted in healthier milk and meat. Organic meat and dairy products include more nutrients, including omega-3 fatty acids. Omega-3 fatty acids help lower blood pressure, reduce chances of heart attacks and stroke, and can improve eye and brain health (Liu & Schelar, 2012).

Antioxidant content: The positive effects of antioxidants on overall health have been established in a number of scientific studies, especially those derived from organic foods. This is because organic foods are free of foreign chemicals that normally react with vitamins, organic compounds and minerals thus lowering the essential positive impacts of antioxidants in food products. A recent study in the Journal of Agricultural and Food Chemistry also revealed that organic onions had a 20% higher antioxidant content than onions that were grown conventionally. They also found that other instances of higher antioxidants in organic food in some cases. The resultant increase in antioxidants 'may reduce the risk of many diseases (including heart disease and certain cancers)' (Barański, 2014). Latest studies propose that the consumption of organic food can contribute to more intake of nutritionally advantageous antioxidants and limited exposure to heavy metals (Kummeling et al., 2008; Burchi et al., 2011). The positive impacts of antioxidants obtained from organic foods include prevention of heart disease, cancer, vision problems, premature aging, and cognitive malfunction (Barański, 2014).

No antibiotics or synthetic hormones: Most livestock farmers feed antibiotics to their livestock to protect them from illness, especially if the farmer is raising animals in unsanitary or crowded conditions. The FDA has limited the use of antibiotics for livestock, but there are still loopholes in the legislation. Except for poultry all livestock can be injected with growth hormones, so they produce more milk and gain weight faster. However, traces of these substances can make their way to consumers, and drug residue is found to contribute to widespread antibiotic resistance.

Organic foods that were produced without antibiotics are safer for consumption, and organic dairy and meat don't have any synthetic hormones that were linked to increasing the risk of cancer (Burke, 2004; Kummeling et al., 2008).

Organic farming tends to be better for the environment: Organic farming practices may reduce pollution, conserve water, reduce soil erosion, increase soil fertility, and use less energy. Farming without synthetic pesticides is also better for nearby birds and animals as well as people who live close to farms (Maeder, 2002). Organic farming reduces pollution, conserves water, and uses less energy than non-organic farming. Organic farms are prohibited from using sewage sludge as fertilizer. Many conventional farmers spread sewage sludge as fertilizer for their crops (Liu & Schelar, 2012). Organic foods are locally grown and pose very minimal interference to the environmental resources that support healthy living. Since harmful chemicals are forbidden in organic farming, there is minimum water, air, and soil pollution therefore ensuring a healthier and safer environment. To be precise, organic farming lessens the long-term human health implications caused by air, water, and soil pollution (Brantsaeter et al., 2017).

Better overall health: Because organic food is not produced or processed by the use of chemical pesticides or chemical fertilizers, it does not contain any elements of toxic chemicals and may not affect human health in harmful ways. The use of natural techniques such as green manure to fertilize the lands and crop rotation in pest and disease control work absolutely well in producing safer, healthier, and smellier final food products (Smith-Spangler, 2012). Besides, healthy foodstuff simply means healthy people and better nourishment for a better living for both people and animals. Organic meat contains 47% more omega-3 fatty acids which are linked to both improved cardiovascular health and immune function. Organic milk is significantly higher in omega-3 fatty acids – The Soil Association believes this is because organic livestock eats a more natural grass-based diet containing high levels of clover (Liu & Schelar, 2012).

Improved Heart condition: Exclusive grazing on natural grass increases the amounts of CLA (conjugated linoleic acid) found in animal products. The suns energy is well taken in by natural grass through photosynthesis and is converted into the most desirable organic CLA by the herbivores that feed on it. CLA is a heart-healthy fatty acid with the potential of bolstering cardiovascular protection, and it is found in higher quantities in the meat and milk products of animals that have been pastured in free range. Organic crops contain up to 60% more key antioxidants than foods that are grown non-organically – this is equivalent to eating an extra 1-2 portions of fruit and veg each day (Barański, 2014).

Antibiotic resistance: Humans are susceptible to various health issues and disease, and most of the time they have to take precautionary measures to ensure they remain healthy. This is achieved by getting a variety of vaccinations and antibiotic drugs when a new strain of virus or bacteria is realized. Similarly, non-organic food sources (especially livestock and feeds) use vaccines, growth hormones, animal byproducts, and antibiotics to treat and feed the animals. Non-organic meat and poultry are often injected with hormones and antibiotics, which have been linked to antibiotic-resistant bacteria, including many that harm humans. Organic meats and dairy do not have antibiotics so do not have this problem (Liu & Schelar, 2012). When humans consume the non-organic food products, they indirectly consume the antibiotics, growth hormones and vaccines which weaken immune systems on the account of antibiotic, vaccine, hormones, and animal byproducts overdose. This may alter the immune system thereby rendering humans unable to defend themselves against diseases. The benefit of organic foods is that their production processes does not involve the use of antibiotics, growth hormones, animal byproducts, or vaccines (Liu & Schelar, 2012).

Better taste: Apart from nutrition, the mineral and sugar structures in organic foods are tasty because the crops are given more time to develop and mature (Burchi et al., 2011). The use of natural and environmentally friendly agricultural production techniques is revealed to be the reason for the better taste in organic food products. It is commonly reported that the taste of organic vegetables and fruits are of higher quality compared to those that are conventionally grown (Clark & Tilman, 2017).

Stronger Immune System: The traditional or industrial farming practices aim at enhancing production and farm output by all means necessary. For example, the notion of producing more cereals, more meat and bigger fruits through genetic modifications and use of growth hormones seems to solve some of the world's food insecurity concerns. The effects are not yet visible, but in the long-term, the consequences are sensitivity to allergens and a major reduction in immune system strength (WHO, 2012). By eating organic foods, the risks of decline in immune system strength are significantly reduced because organic foods are not altered at all. Furthermore, organic foods have quality and higher vitamin and mineral contents that help to strengthen the human immune system (WHO, 2012).

Organic products are poison-free: Organic farming does not use any kind of dangerous chemicals to keep away pests and diseases. All the practices are natural and thus do not harm the consumer. Aspects such as biomagnification are lessened via the practice of organic farming as chemical pesticides, fertilizers, herbicides, and artificial growth hormones are all prohibited on an organic farm. Therefore, organic food products are free of contamination with health harming chemical substances (Kongsom & Kongsom, 2016).

Lessened chances of food-borne illness: There have been several reported cases of food-borne illness outbreaks. Eggs, spinach, peanut butter, melons, and foods from fast food restaurants have topped the list as their production is primarily centered on agribusiness gains. Even the animals are sick as a big percentage of them are drugged, vaccinated, and fed on animal byproducts to enhance their productivity so as to meet the ever-growing agribusiness demands (Prasad et al., 2019). This practice is known as concentrated animal feeding operations (CAFOs) and it causes deadly drug-resistant infections which are acquired by the end consumers when the food products are eaten. The best way to prevent the food-borne illness outbreaks is to opt for organic food (Liu & Schelar, 2012).

Lower levels of toxic metals: By now, it's clear that whatever we ingest indirectly comes from the soil together with other physical environmental interactions. So, the fact that organic farming doesn't use agrichemicals for crop production means minimized consumption of toxic metals (Kummeling et al., 2008). New studies confirm that organic crops have 48% lower levels of the toxic metal cadmium than conventional crops (Kirchmann & Bergstrom, 2008).

Less risk of Cancer: Due to the absence of synthetic pesticides in organic foods, there is less risk of cancer from eating organic food. A study showed that switching to an organic diet decreased levels of cancer-causing glyphosate – the main ingredient in a common pesticide – by 70% in participants' bodies in only one week (Lu et al., 2006; Alavanja & Bonner, 2012).

Drawbacks of Eating Organic Foods

Costs: Due to the nature of and cost of producing organic products, organic products are very expensive sometimes over twice as expensive as non-organic products (Kongsom & Kongsom, 2016).

Certification: The first cause for higher price of organic produce is because of the certification process all farmers need to go through to be accredited as an organic farmer. Organic farming has very high standards, and farmers need to undergo a lengthy certification process in order to be certified as organic. These costs can be up to $1,500 (657,000 Naira) initially, and there are even annual costs involved which is based on the total organic production value of the farm. All increasing the costs the consumer has to pay for organic produce (Liu & Schelar, 2012).

Labour: In organic farming much more, manual labor is involved. In organic farming weeding is often done by hand and pests are controlled by introducing natural predators of those pests into the crop. This is much

more labor intensive which again raises the price for organic food (Alavanja & Bonner, 2012).

Shelf Life: The shelf life of organically produced crops is often much shorter compared to regular produce, because conventional produce is treated with waxes and preservatives to maintain its freshness during the shipping of the products. Sometimes also cling film is used to extend the shelf life of fruits and vegetables even further. Organic food does not receive these treatments and therefore spoil faster. This has another downside that part of (or even the entire) shipment of an organic crop might be lost if the crop was delayed or mistreated during transport. In this case, everything the farmer has produced might never reach the consumer (Kirchmann & Bergstrom, 2008).

Farming Systems: Because pests and diseases are controlled in a less hard manner, the crop is much more susceptible to crop loss due to these circumstances. When a part of the farmer's crop is lost, he has to increase the prices of his produce to ensure the continuation of his business (Alavanja & Bonner, 2012).

Synthetic Pesticides: Synthetic pesticides might still be used in organic farming, but this is only in special cases. Farmers who can show proof that the natural pesticides used have not worked sufficiently to control the pest in their crops are allowed to use synthetic alternatives (Alavanja & Bonner, 2012). These farmers need to prove that their organic farming practices and other organic practices have failed multiple times. Only then may they switch to synthetic alternatives in order to avoid the loss of the entire crop. This then also means that some organic foods that are sold as organic might have been exposed to the same chemicals and processes as conventional crops. While the consumer still has to pay the price like it is an organic crop (Kirchmann & Bergstrom, 2008).

Conclusion

Organic food is grown without the use of synthetic chemicals and does not contain genetically modified organisms. Organic foods can be fruits, vegetables, grains, dairy, and meat. Organic farms aim to cut pollution, provide safe places for farm animals to live, and promote a self-sustaining cycle of resources on a farm. Even though organic products are thought to be better for the health and the environment, they are more expensive than convention ones. It is mainly down to personal choice if they are worth the extra cost, but if you can afford organic products then that is a great thing for you. It will not only benefit you but will also support all those farmers, who practice organic agriculture and farming. It isn't necessary that you start buying organic straight away.

Organic food provides a variety of advantages and nutritional value for human health. Some studies shows that organic foods have more beneficial nutrients, such as antioxidants, than their conventionally grown counterparts, in addition, people with allergies to foods, chemicals, or preservatives often find their symptom lessons or go away when they eat only organic foods. In addition: organic produce contains fewer pesticides. Organic food is often fresher. Fresh food taste better. Organic food is usually fresher because it doesn't contain preservatives that make it last longer. Organic produce is often but not always, so watch were it is from produced on smaller farms near where it is sold. Organic foods should be the number one food of consumption nationwide for everyone to harness its benefits.

Availability of Data and Materials

The authors declare consent for all available data present in this study.

Conflict of Interest

The authors declare no conflicts of interest. The authors alone are responsible for the content and the writing of the paper.

Funding

This research did not receive any grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' Contributions

The entire study procedure was conducted with the involvement of all writers.

Acknowledgements

The authors would like to acknowledge the management, Laboratory and technical staff of Saint Kenny Diagnostic and Research Centre, Ujoelen, Ekpoma, Edo State, Nigeria for their excellent assistance and for providing medical writing support/editorial support in accordance with Good Publication Practice (GPP3) guidelines.

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DOI:10.31579/2693-2156/138