

Why Go Organic?

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I. What Organic Foods Do and Do Not Contain Impact You, the Consumer

A. The dirt on pesticides

Because scientific study in this area has only recently begun, hard data is limited, but there are some things we do know. One is that exposure to pesticides from conventional (that is, non-organic) farming is a real concern. Chronic effects of pesticides include different types of cancer, infertility, hormone balance disruption, and neurotoxicity. This is why naturopathic literature recommends that patients with any of these disorders eat organic diets. According to the EPA, 170 pesticides are possible, probable, or known human carcinogens, and one demonstration of this may be the increased incidence of lymphomas and prostate cancer among farmers. Pesticides are also being implicated for the increased incidence of birth defects in farmers' children. Moreover, a pesticide that is commonly sprayed on American cornfields (atrazine) has been shown in the ultra-low concentration of 0.1 part per billion to cause gonad abnormalities in frogs and actually transform normal male frogs into hermaphrodites (animals with both male and female reproductive organs). Researchers say it may just be a matter of time before we find that atrazine is also harmful to humans. Of note is that European governments have already banned its use.

While exposure to pesticides is a problem for the general population, there is particular concern over the biological impact that pesticides have on children. This is because, given their smaller size and increased food consumption while growing, children's exposure is considered to be much greater than that of adults. It is, therefore, very important that children's, particularly infants', exposure to these chemicals be minimized.

One fundamental (and also delicious) way to reduce exposure to pesticides is to eat organic foods. While this seems intuitive, a study out of Seattle, WA, published in 2006 in the Environmental Health Perspective, demonstrated that this is, in fact, the case. This study revealed that when children were placed on a diet of organic fruits, vegetables, and grain products, the concentration of two organophosphate pesticides in their urine immediately dropped to below the detection limit and stayed there until conventional foods were reintroduced.

B. How does the average person best avoid consuming pesticides with their otherwise healthy diet?

1. Produce and the dirty dozen

Contrary to popular belief, merely peeling conventional produce because most of the pesticides are either in or just under the peel is not the answer. The problem with this is threefold: 1) most of the beneficial vitamins and antioxidants are also either in or just under the peel, 2) some of the pesticide residue penetrates the peel and enters the flesh of the produce, and 3) many produce items cannot be peeled. If you eat organic, none of these issues are of concern.

A very helpful hint for those who do not have access to buying all organic produce is to, at least, avoid the "dirty dozen" in their conventional form. The dirty dozen are the 12 produce items that the USDA found to be the most contaminated with pesticide residue during its testing of 46 fruits and vegetables between 1992 and 2001. The list, in decreasing order of contamination level, includes: peaches, strawberries, apples, spinach, nectarines, celery, pears, cherries, potatoes, bell peppers, raspberries, and imported grapes.

2. Meat and dairy- the greater risk

While the pesticide residues in the dirty dozen are certainly significant, the fact is that fat-soluble pesticides found in conventional meat, dairy products, and eggs pose an even greater health risk. This is because pesticide residues concentrate in fatty acids and also accumulate at the top of the food chain. Therefore, meat, dairy, and eggs from conventional, grain-fed livestock contain concentrated pesticide residues from the multiple bushels of conventionally-grown corn and grain that the livestock ate over time.

Conversely, organic beef and dairy products, organic pork and poultry, and organic eggs are all free of these concentrated pesticide residues.

After conventional meat and dairy products, it is most important to avoid conventional oils, nuts, seeds, and grains- in that order- because of their fatty acid and, therefore, concentrated-pesticide-residue content.

C. Antibiotics- easy to resist

Most conventionally-raised farm animals receive a constant, low-level dose of antibiotics to help limit disease or death from overcrowded living conditions and from disorders they are susceptible to because of the unnatural diets imposed upon them (see **Farm Animals** section). Another reason for administering antibiotics is so the animals grow larger and fatter at an increased rate and can be slaughtered at a younger age. The resulting lower feed costs lead to increased savings for livestock producers and cheaper products for consumers. However, this cost-saving measure is proving to be costly in the long run.

The great concern, besides the ill-effects that unnecessary antibiotics have on the livestock, is that some of the antibiotics they receive are also used in human medicine. This leads to bacterial resistance and the need to develop new antibiotics. In 1999, researchers discovered that chickens had developed bacteria that were resistant to fluoroquinolones, a very powerful class of antibiotics that are used to treat certain severe infections in humans. In 2001, the FDA reported that, after testing bacteria in beef and poultry sold in U.S. supermarkets, it found “fairly substantial amounts of resistance to a number of drugs.”

Because of the mounting evidence regarding the dangers of antibiotic resistance, the U.S. House democrats presented a bill to Congress entitled the “Preservation of Antibiotics for Human Treatment Act of 2002.” This bill, which was endorsed by the American Medical Association, the American Public Health Association, and the American College of Preventive Medicine, calls for the phasing out of eight classes of drugs presently used to promote rapid growth in farm animals and specifically demands the ban of all use of fluoroquinolones in poultry.

However, per conversation with a representative from Congressman Murphy’s (R-PA) Washington, D.C. office on September 12, 2006, this bill is still with the Energy and Commerce Committee and has not yet been voted on by Congress. Thankfully, organic farmers and some others (see the section on antibiotic-free animal products) have taken it upon themselves to stop this particular use of antibiotics without waiting for government legislation. The European Union, on the other hand, has already taken action on this issue and has banned the use of human antibiotics in animals as growth promoters.

D. The problem with hormones- cancer, cancer everywhere

1. It’s in the meat

Along with antibiotics, conventionally-raised animals are often injected with growth hormones to slow their metabolism and help them gain weight faster. One of the hormones used is estradiol, a form of estrogen. Excess estrogen is linked to reproductive cancers, including breast, testicular, and prostate cancer, and statistics show that, since the inception of industrialized farming in the U.S. in the 1950s, the incidence of each of these cancers has risen sharply. Breast cancer is up by 55%, testicular cancer by 120%, and prostate cancer by 230%.

Despite all the publicity about cancer prevention, it is clear that we aren’t preventing anything. Instead, the efforts of medical research have largely been directed toward screening and early detection, treatment, and genetic research. In order to actually prevent cancer, we must attack the source. According to Samuel Epstein, M.D., a professor emeritus of Environmental and Occupational Medicine at the University of Illinois School of Public Health, Chairman of the Cancer Prevention Coalition, and an internationally-recognized authority on

avoidable causes of cancer, the increased risk of breast and other cancers is directly linked with the uncontrolled use of hormones in meat.

2. Got hormone-free milk (or cheese)?

Other widespread but avoidable causes of cancer, according to Dr. Epstein (see **It's in the meat**) and others, are milk and milk products, such as cheese, that come from cows that were treated with genetically-engineered recombinant bovine growth hormone, called rBGH (or rBST). This represents the majority of milk and American-made cheeses available on the market. Why are most conventionally-raised cows treated with rBGH? To increase their milk production so they can be milked three times a day.

The cancer concern about rBGH milk is that it contains up to 10 times more Insulin-like Growth Factor One (IGF-1), a potent, naturally-occurring growth hormone which is identical in cows and humans. IGF-1 is made even more potent by pasteurization, is not broken down during digestion, and is readily absorbed across the intestinal wall into the bloodstream, where it is then able to affect other hormones. According to an article published in 1998 in *Lancet*, an international medical journal, women with just a small increase in blood levels of IGF-1 are up to seven times more likely to develop pre-menopausal breast cancer than are women with lower levels. Elevated IGF-1 levels are also among the highest known risk factors for colon and prostate cancers.

Based on unarguable scientific grounds published in international public health journals, as well as ethical and ideological concerns, the European nations and Canada have banned rBGH, and American milk, to protect their citizens from IGF-1 hazards. Why does the FDA approve sale of unlabeled rBGH milk in America? According to Dr. Epstein and others, it is largely because of the influence on U.S. product safety laws by Monsanto Company, a multi-national corporation based out of St. Louis. Monsanto is not only a leading producer of genetically-modified seeds that contain herbicides and pesticides but also the manufacturer of rBGH. Monsanto would lose billions of dollars if rBGH were banned in America.

How do you avoid rBGH milk? Other than buying organic, one way is to look for milk that is labeled “NO rBGH.” Because the FDA regards rBGH safe for human consumption, based on Monsanto-sponsored trials, it does not permit dairy farmers to print “hormone-free” on milk labels. The same holds true for American-made cheeses. Either buy organic or look for “NO rBGH” labels. Or, you can exclusively purchase imported European cheeses, as they do not contain rBGH. And, if you enjoy frequenting Starbucks, be aware that it is a major purchaser of milk from cows injected with rBGH. In June 2006, the Organic Consumers Association (OCA) led a nationwide protest against Starbucks cafes because, despite grassroots pressure since 2001, it continues to purchase rBGH milk. The OCA contends that, if Starbucks were to reject rBGH dairy products, the rBGH industry would effectively be eliminated from the U.S. market.

Ultimately, the best way to avoid the many health risks of products from livestock treated with hormones and antibiotics, is to select organic meats, dairy, poultry, and eggs. They are, by definition, hormone-and-antibiotic free.

E. What about animal products that carry the label “hormone-free, antibiotic-free”?

While they are better than foods from animals that were injected with hormones and antibiotics, be aware that these products are **not organic**. This is important to point out, as grocery store personnel are often misinformed and actually tell their customers that these products are organic, when they are not. Unless the farmer specifically indicates otherwise, the animals from which these hormone-and-antibiotic-free foods came were fed conventionally-grown grain diets. Therefore, as discussed above (see **Meat and dairy- the greater risk**), these products are still a source of concentrated pesticide residues in the human diet. For further details on the ill-effects of feeding conventionally-grown grain to livestock, see the below sections on the environment and farm animals.

F. Higher nutritional content for animal products

Conventionally-raised cattle are grain-(mostly corn) fed. Conversely, organically-raised cattle are grass-fed for at least most of their lives, and this adds significantly to the nutritional content of the meat and dairy products they yield. Organic cattle that are 100% grass-fed yield the products that are highest in nutritional value.

According to Dr. Dhiman, of Utah State University, in comparison to grain-fed beef, grass-fed beef has 78% more beta-carotene, 400% more Vitamin A, 300% more Vitamin E (linked with anti-aging properties and lower risks of heart disease and cancer), 75% more omega-3 fatty acid, and 500% more conjugated linoleic acid, or CLA.

Omega-3 and CLA are essential fatty acids. This means they are fatty acids that our bodies require but are unable to manufacture and, therefore, must obtain through diet. Omega-3s are at high levels in grass-fed animals because 60% of the fatty acids found in grass are omega-3s. Once an animal is transferred to a feedlot to eat grain, however, it begins to lose its store of this beneficial fat, which becomes entirely depleted in less than six months. “Grain-finished” cattle are often fed grain for at least six months before slaughter.

People with ample amounts of heart-healthy omega-3 fatty acids in their diet are less likely to have high blood pressure or an irregular heart beat and are 50% less likely to suffer a heart attack. Omega-3s are also essential for brain health and lower the risk of depression, schizophrenia, attention deficit disorder, and Alzheimer’s Disease. CLA helps regulate fat metabolism and storage, boosts the immune system, and is a potent anti-cancer agent.

In comparison to grain-fed cattle, grass-fed cattle and their dairy products are also lower in overall fat content, saturated fat, cholesterol, and calories. In fact, research shows that lean beef, such as that from grass-fed cattle, actually lowers your “bad” LDL cholesterol levels. As for calorie comparison, a 6-oz steak from a grass-fed steer can have 100 fewer calories than a 6-oz steak from a grain-fed steer. The average American who eats 66.5 pounds of beef per year would save enough calories to lose approximately 6 pounds per year just by changing to grass-fed beef.

While a 100% grass-fed diet is the best diet for cattle (see **Farm Animals** section for details on the detrimental effects of grain diets on cattle themselves), poultry and pigs require at least some grain in their diets. On conventional farms, they are grain-fed entirely. On organic farms, they are allowed access to pastureland during the day, and their diets are grain-supplemented. This outside access is not only beneficial for the animals, but it also makes a difference in the nutritional value of the products they yield. Free-range pork and poultry and cage-free eggs are higher in omega-3s, CLAs, and a number of vitamins as compared to their conventional counterparts.

G. Why do conventional farmers feed unnatural, grain-based diets to farm animals? It’s about money. The factory-farm diets were designed to boost productivity and reduce costs when mass production of meat, poultry, eggs, and dairy products began in the 1960’s. The cost of producing the grains for these diets is kept artificially low by government subsidies. To further cut costs, conventional livestock feed may also contain “byproduct feedstuff”, such as municipal garbage, stale pastry, chicken feathers, and candy. It is really no wonder that products from grass-fed and free-range animals are higher in nutritional value.

H. Polyphenols- organic produce just got even better

In a study by the University of California- Davis published in the Journal of Agriculture and Food Chemistry in 2002, organically-grown corn, strawberries, and blackberries were shown to have significantly higher levels of Vitamin C and polyphenols than their conventionally-grown counterparts. Polyphenols are plant metabolites (substances essential to the metabolism of an organism) which have recently been shown to play an important

role in human health and nutrition. Many are potent antioxidants, some prevent or actually attack cancer cells, and others exhibit antimicrobial, or germ-fighting, properties.

The reason the organics produce more polyphenols is thought to be two-fold:

1) Polyphenols are the plants' protective mechanisms against pests and diseases, and the higher the threat from pathogens, the more polyphenols the plant will produce. Because conventional plants are sprayed with pesticides, the threat from these pathogens is far less and, therefore, so is their need to expend their own energy and resources to manufacture this protective mechanism.

2) Appropriate crop rotation and the lack of fumigants (used to sterilize soil before planting conventional crops) make organic soil healthy and teeming with beneficial organisms, which in turn provide the necessary nutrients for plants to form polyphenols. Conventional soil, by comparison, is virtually sterile and nutritionally depleted and, therefore, cannot supply all the necessary raw ingredients to synthesize these compounds, leaving the plants less robust and more vulnerable to attack.

In addition to their health benefits, many polyphenols contribute to the characteristic taste of a fruit or vegetable. Therefore, alongside the health of the soil, seasonality, and good farming practices, higher concentrations of polyphenols may be one more reason why fresh, organic produce tastes better than fresh, conventional produce.

I. Irradiation- we can do without it

There is considerable scientific controversy over whether or not to irradiate foods (that is, expose them to ionizing radiation), as chronicled by Public Citizen, a national, non-profit public interest organization. Meats, poultry, eggs, fruits, and vegetables are sometimes irradiated in order to kill bacteria and extend the shelf life of the item. However, between 1998 and 2002, several studies were published on a class of chemicals called alkylcyclobutanones, which are found only in irradiated food and have been shown to promote cancer formation and genetic damage in rat and human cells.

While the ideal would be to insist that food be clean rather than irradiating it, the FDA has not yet taken action on this issue, and foods in stores, schools, and restaurants continue to be irradiated. (Irradiated foods in grocery stores are labeled, but you have no way of knowing if foods in schools or restaurants are irradiated unless you ask.) Aside from the sanitation controversy and the cancer concerns, the fact is that irradiation destroys vitamins. And, while irradiation does extend shelf life, each day an item ages, no matter how good it looks, it loses both flavor and nutritional value.

Fortunately, by definition, organic foods are not irradiated.

II. The Environment- what a difference a grain makes

The food that harms the environment the most, and therefore the best example to discuss in this segment, is conventionally-raised, grain-fed beef. Interestingly, it is the grain which is the primary reason for the beef's adverse environmental impact. After spending most of their lives on the range eating grass, the cattle spend their final months in a feedlot that gradually replaces up to 90% of their diet with corn and soybean meal. Cattle must eat seven pounds of grain to gain one pound of weight, and growing the necessary quantities of grain requires vast amounts of land, irrigation water, pesticides, and fertilizers. Subsequently, these pesticides and fertilizers- along with antibiotics, hormones, manure, and eroded soil- go on to pollute our environment.

A. The land-air-water connection

To best illustrate the chain of events leading to environmental damage, consider that most of the Midwest's grasslands and forests were replaced with grain farms to feed livestock and that 100 million acres of land are used for this purpose. The feed crops deplete the topsoil of nutrients, resulting in erosion. To compensate for the soil's lost productivity, farmers apply fertilizer- and lots of it- in the form of chemicals, manure, and treated sewage sludge. In fact, approximately half of the fertilizer applied in the U.S. is for growing grain feed for livestock alone. The fertilizer then decomposes to form nitrous oxide. The nitrous oxide from fertilizers on cropland and from decomposing manure then combines with carbon dioxide and other gases to trap heat in the environment. This accounts for 6% of the greenhouse effect in our lower atmosphere.

While certainly significant, the greenhouse effect is not the only source of environmental damage. When chemical fertilizers run off into the water supply, the nutrients from the fertilizers feed the algae, which subsequently die. As the algae decompose, the oxygen levels in the water decrease. By this mechanism, and because so much fertilizer from the Midwestern corn farms washes into the Mississippi River, there is now a poorly-oxygenated "dead zone" the size of New Jersey in the Gulf of Mexico where bottom-dwelling sea life can no longer survive.

B. Depleting our resources

Besides polluting the land, air, and water, chemical fertilizers tax the environment even further because of the energy required to produce them. It is estimated that the amount of energy used to manufacture fertilizer for grain feed for livestock alone in the U.S. could provide a year's worth of power for one million Americans.

Yet another environmental strain is the massive amount of water required to support this industry. In part because of the arid conditions of the Midwest, it takes about 18,000 gallons of rain and irrigation water to produce just one pound of conventional, grain-fed beef. Together, the water required to raise this livestock and irrigate the crops they eat consumes over half of all the freshwater used in the United States.

Conventionally-raised pigs and chickens also contribute in similar fashion to harming the environment, as they, too, eat grain most of their lives. However, the environmental impact is less because they convert grain to muscle more efficiently than cattle do, which reduces the amount of grain required to sustain them. Organically-raised pigs and chickens, on the other hand, have a considerably less impact on the environment. This is because, although they do consume some grain, they consume far less than their conventionally-raised counterparts, as their diets are only grain-supplemented. Furthermore, the grain they consume is free of environmentally-harmful synthetic fertilizers and pesticides, and the livestock themselves are free of antibiotics and hormones, which are also environmental pollutants.

C. What to do

From the standpoint of preserving the environment, the best scenario would be that everyone adopts either an organic vegetarian or vegan (no animal products, dairy products, or eggs) diet. Given that this is highly unlikely, the next best scenario is for people to switch from eating conventional meats, dairy, and eggs to eating organic, grass-fed beef and dairy, organic free-range pork and chicken, and organic cage-free eggs. In this way, the use of pesticides, fertilizers, antibiotics, and hormones would be greatly reduced, feedlots would shrink, the amount of land required for grain feed would dramatically decrease, and vast amounts of water and energy would be conserved.

III. Farm Animals- inhumane treatment and choosing not to support it

Many conventional farming practices are both inhumane and unsanitary, and as mentioned above, have been adopted in order to sell meat, dairy products, and eggs cheaply and at high volume. The following are examples of the unacceptable ways in which these animals are commonly treated.

Conventionally-raised cattle are forced to spend their last months in overcrowded feedlots eating high-grain diets. The cattle's digestive systems are not designed to eat starchy, low-fiber grains but rather fibrous grasses, plants, and shrubs. When cattle are switched from pasture to grain diets, it causes an acid imbalance in their stomachs which can lead to a number of disorders. Among them are indigestion, stomach ulcers, liver abscesses, and Vitamin B-1 deficiency, which leads to a central nervous system disorder, called feedlot polio, that results in paralysis. A high-grain diet can also lead to gas-trapping in cattle's stomachs and severe bloating. In extreme cases, the animal becomes too bloated to breathe and dies.

Conventional dairy cows are dehorned, without the use of anesthetics, in order to prevent them from injuring each other in overcrowded conditions. They are often injected with a growth hormone (see **Got hormone-free milk (or cheese)?**) which increases their milk production but also increases the incidence of lameness and udder infections and decreases their life span by 5 to 10 years. In addition, their tails are often cut off in order to prevent them from flinging dirt and excrement.

Most conventionally-raised pigs live in cramped, small pens in huge sheds and are constantly exposed to fumes from their manure and urine, which drop below slatted floors. Their tails are also cut to prevent tail-biting.

Conventionally-raised broiler chickens live in huge sheds that hold up to 50,000 birds with floor coverings that are rarely changed. Feathers, feces, and feed become mixed with the sawdust on these floor coverings and cause burns on the chickens' feet and legs. Conventionally-raised layer hens are cramped into little cages and do not have room to flap their wings. Farmers trim these birds' beaks to prevent them from pecking each other, and this debeaking causes pain that recurs when the bird eats.

Finally, after living abysmal lives, the slaughtering process for many of these farm animals is often less than humane.

While every farm is different, with some treating their animals better than others, it is a fact that organic, grass-fed cattle and organic, free-range pigs and chickens, by definition, live a more humane life than that described above. They have access to the outside environment, they eat as that species of animal would normally eat, the vegetation they eat is organic, and they are hormone and antibiotic-free.

Organic Personal Chef Service inquires about the treatment of farm animals, from birth to slaughter, before purchasing from a potential vendor.

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