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Why Should We Eat Organic Food?

There are many reasons why people should not only eat organic food, but live an “organic lifestyle”. These reasons fall under three broad classifications: health, economic sustainability, and social responsibility.

What does it mean to grow/raise food organically?

- The 600+ page Federal Organic Standards Act (OSA) document addresses both plant and animal farming practices. Growing plants organically means that among other things: **Harmful chemicals; Genetic engineering; Irradiation; and Crop rotation**, may not be used. Raising animals organically means among other things that animals are: **raised on organic vegetable feed** and they are **raised humanely**.

According to the OSA, organic plants are not treated with **harmful chemicals** (including non-organic insecticides, herbicides, fungicides, fertilizers, etc.). The substances used don't hurt the ecosystem including, groundwater, beneficial soil based organisms, plants, animals, and the farmer.

- The act bans **bioengineering** (not hybridizing, but the process of gene-splicing). There is a big difference between the traditional practices of hybridizing and the modern practices of bioengineering. In hybridization the farmer (or mother nature herself) controls which individuals in a species are allowed to breed with which other individuals (selecting for the heartiest, tastiest, and most nutritious varieties). In bioengineering genes are actually spliced into the cells of plants or animals. These genes could come from species completely different from the organisms being manipulated (i.e., bacteria genes spliced into corn). The long term effects of this type of manipulation are completely unknown.

- It bans irradiation. Irradiation sometimes changes the molecular structure of foods, creating new and possibly harmful compounds.

- It also requires crop rotation, a procedure that guards against nutrient depletion in the soil. Crop rotation also fights against erosion. - - In some areas of the United States as much as 50% of the top soil has been lost. No top soil, no food.

- The organically raised vegetable thrives in nutrient-rich soil, without the stressors of chemicals, or manipulation by bioengineering and irradiation.

- For animal products, including dairy and eggs, it means that animals are raised on organic vegetable feed (with no animal by-products, antibiotics or hormones) and they are raised humanely (with room to move). There are many other standards as well; these are among the most important.

Health

- Organic foods can help to improve our wellness for a number of reasons: The **nutrient value** of organic foods is often higher; **exposure to toxins** may have a negative impact on our wellness; the long term **health effects of ingesting bioengineered foods is unknown**; and there are **more diseases found in the conventional animal product food stream**.
- Recent studies are showing that the level of many nutrients is higher in organic produce than in conventional produce. A study published in the *Journal of Applied Nutrition* (Vol. 45, 1993) compared organic produce with similar varieties of conventional produce. Results revealed organic products had, on the average, over 90% more vitamins and minerals as compared to conventionally grown produce.
- Additionally, exposure to residues from pesticide, hormone, and anti-biotic tainted foods may have some effect on the rise of anti-biotic resistant bacteria, some cancers, infertility, and other disorders. Please note that chemical residues are not necessarily the only issue; some chemicals can become systemic (finding their way into the cells of the plant), and can not be washed off. Most of the studies showing these toxic effects are performed on animals, and are therefore not completely conclusive. A Danish study showed that men whose diets were composed of at least 25% organic produce had sperm counts 43% higher than men who ate no organic produce.
- The long-term health effects resulting from the consumption of bioengineered foods is not yet known.
- Conventional animal products may contain more pathogens. There are diseases that we can get from eating tainted meat (Trichinosis, Salmonella, Botulism, CJD (Mad Cow)). Many of the practices of conventional farming are the cause of the transmission of these diseases (ex., over-populated feed lots; and feeding cows...cows).
- The best place to buy organic food is at your local farmers' market where the produce is FRESH! Green vegetables lose up to 50% of their nutrients five days after they are picked. Conventional produce travels an average of 1300 miles from farm to market, a journey that takes as many as 7-14 days. Organic produce is usually grown locally, and is often picked the day before it goes to market.

Economic Sustainability

- Conventional farming is a very expensive proposition on both national and local levels. When you consider the cost of the chemicals, the cost of cleanup, the additional healthcare costs incurred due to toxic exposure, you begin to see why the conventional agricultural industry is so heavily subsidized by our tax dollars. Organic foods are often assumed to be prohibitively expensive. However, a review of the health and social benefits may help to correct this misperception. There are three important issues to review as you decide how to spend your food dollars: **Subsidies, pollution, effects on community**. First, the US government subsidizes non-organic, conventional farming, also called agribusiness. Although the chemicals used in such farming practices are very expensive, the subsidy results in lower prices at the market as compared to non-subsidized organics. Corporate lobbyists

fight for the subsidies to keep government monies in their pockets, and the price of conventional produce low. In fact, health author/researcher Gary Null has calculated that a head of conventionally grown lettuce would cost \$4-5 if you added in all the taxpayer subsidies. Second, agribusiness is one of the greatest polluters of our water supply as the chemicals used seep into the water table. Clean-up, when done, is paid for with tax monies. David Pimentel of Cornell University estimated in 1971 that the harmful "recognized" effects of pesticides represent a cost to the U.S. of at least \$3 billion annually. When the "unrecognized" effects are added in that figure may jump up to as high as \$9 billion. And last, most conventional agriculture is not coming from inside your community, often not even from your own state, and sometimes, not even from within the borders of the country. What that means is that: a) Food is shipped an average of 1,300 miles at great cost, and b) money spent on those products leaves your community. Most organic agriculture is from your local region, and the profits stay in the community. In sum, conventional produce can be an expensive proposition!

Social Responsibility

- There is a positive side and a negative side to the Organic Standards Act. The good side is that it standardizes what it means for food to be "Organic". Most states outside of California don't have any organic standards, and that allowed some abuse. On the negative side we see that the high price of Federal certification is causing some farmers who were certified organic under the CCOF California certification, no longer able to label their products "Organic". The farmer's practices may be organic even if the farmer has not been able to afford the high fees for certification (especially the new federal standards). At the Farmers' Market, you can get to know the farmers who grow your food. Developing these relationships is important as you will get to learn their farming practices.

- Modern day "conventional" farming contributes to the destruction of biodiversity, and could some day contribute to species extinction. Some of the ways this occurs are to introduce non-native species (like the Atlantic Salmon) into an ecosystem where that species can "out-compete" native species; or by genetically modifying a "super-crop" which is extremely resilient, and cross-pollinates with native species, thereby eradicating the native species; or when pesticides like Bt are genetically spliced into the DNA of corn, species like the Monarch Butterfly can be affected significantly. As I mentioned earlier, conventional produce travels an average of 1,300 miles. The diesel fuel and jet fuel used to transport those crops adds to the air pollution we create, causing global warming, and smog issues (like asthma). Over the past 100 years conventional farming methods have contributed to as much as 50% of the topsoil in certain areas being eroded. Many organic farming techniques prevent soil erosion and in fact can contribute to the addition of top soil.

Fish (A special case)

- Fish do not fall into the OSA. However it is very important to talk about this issue here. There are two important issues to talk about: **Health; and the Effects on the Oceanic Ecosystems.** Many of the same issues between conventional animals versus organic animals hold true between farmed fish and wild fish. Farmed fish have much lower levels of Omega-3

fatty acids and much higher levels of Omega-6 fatty acids and saturated fats. Farmed fish are often fed anti-biotics. Farmed fish are often infected with sea lice and sprayed with pesticides. Farmed fish may be bioengineered. Farmed fish may have more diseases. Farmed salmon are treated with colorants (farmed salmon is gray "no qi?", as opposed to orange..."abundant qi?"). Farmed fish are raised in inhumane conditions, often being fed food that is not in their normal diet. As an example, Salmon are carnivorous, yet farmed Salmon may be fed vegetable matter. Farmed fish contain far more toxins. Recently Scotland has suggested to their population that if they are pregnant or are of child bearing age that they not eat farmed salmon at all, and that all others eat farmed salmon no more than once per month. This comes from a country who is a leader in the salmon farming industry.

- There are grave effects on the ecosystems around factory farms. Factory fish farms produce a large amount of waste which is part of the water system and flows out of the pens and into the streams and/or oceans. Bioengineered fish and/or non-native species often escape and out-compete native species, which could lead to extinction. An example of this is the use of Atlantic Salmon (a heartier species) in the Pacific. The Atlantic Salmon have been found to escape and out-compete the Pacific Salmon. Another example is the Shrimp farms in Bangladesh and India that destroy the Mangroves wiping out an important plant species and creating devastating coastal erosion.

Taste

- Better taste is a commonly experienced "side effect" of eating organic food. A reticent friend recently did a side-by-side taste test and was surprised at his results. He compared conventionally grown and organic tomatoes, spinach, bananas, milk, yogurt and sour cream. He stated, "As a man in my sixties, I was amazed that the flavor of organic foods revitalized tastes from my childhood. Organics have changed the way I shop and eat!" He also commented that he is so impressed with organic milk that even if he runs out, he will not replace it until he can get it organically.

Living an "Organic Lifestyle"

While it is clearly important to eat organically, it is also important to live organically. 25% of all of the pesticides sprayed on crops in the United States is sprayed on the cotton crops (and these pesticides are often far more harmful than those used on food crops). It is a good idea to support organic natural fiber materials (like hemp and organic cotton (hemp is very resilient and very rarely is applied with pesticides)). Chemicals in the home (cleaning products or paints) can be a source of toxic exposure, often due to the "off gassing" of chemicals from these products. We take in a great deal of chemicals through the water supply (chlorine, fluorine, agricultural pesticides, etc.). We take in a great deal of chemicals through the water supply (chlorine, fluorine, agricultural pesticides, etc.). Water filtration, including in the shower is very important (during a 5-10 minute shower Chlorine exposure, is equivalent to the exposure you get drinking 8 cups of water). Remember what you put on your body you put in your body. Which brings me to cosmetics...The chemicals (including dyes used in cosmetics) do not have the same regulations as those used in food stuffs and may be more harmful).

Rachel Carson, one of the earliest leaders in the movement to ban pesticides sums it all up very well...

"The 'control of nature' is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man."
-Rachel Carson in *Silent Spring*, 1962

Top 20 Foods to Buy Organically

Baby food: The reason it is so important to buy organic baby food is that babies and children are very susceptible to toxic exposures. Their developing Liver lacks the enzymes necessary to break down toxins. Their growing bodies store most things, and purge very little (their cells undergo more rapid growth). Their immune system is not fully developed and they are more susceptible to stressors. It is estimated that a human receives approximately 35% of their lifetimes "toxic exposure" by age 5. So please feed your children and infants clean wholesome food, so they can grow big and strong.

Meat, Eggs, Dairy (animal products): More than any other type of food it is most important to eat organic animal products. I say this for three main reasons. The first is that the chemical exposures you get from produce are multiplied in animal products due to an effect called bio-accumulation. Bio-accumulation is a concept that explains how fat-soluble chemicals accumulate in species as the chemicals work their way up the food chain. What it essentially says is that as you work "up" the food chain chemicals become more concentrated. We can look at DDT...You may find 0.000003 parts per million (ppm) of DDT in a lake; then 0.04ppm of DDT in the zooplankton feeding from that water; 0.5 ppm of DDT in the small fish that eat the zooplankton; 2 ppm of DDT in the large fish that eat the small fish; and 25 ppm in waterfowl that eat the large fish. Secondly, animals are often treated with substances (like hormones and anti-biotics) to which plants aren't often exposed. There is some evidence that the effects of hormones may be carcinogenic. Roy Hertz, Director of Endocrinology at the National Cancer Institute warned of the carcinogenic risks of estrogenic feed additives, particularly for hormone sensitive tissues such as breast tissue, because they could increase normal body hormonal levels and disturb delicate hormonal balance. A particularly "hot topic" these days is the use of rBGH in milk. Among other things rBGH has been found to increase Insulin-like Growth Factor-1 (IGF1) in cows. IGF-1 residues come through in the milk and may be somewhat responsible for increases in Breast and Gastro-intestinal tract cancers. From 1979-1981 3,000 Puerto Rican infants and children were found to have premature sexual development and ovarian cysts. These abnormalities were eventually linked to hormone contamination in milk. Lastly, there are diseases that we can get from eating tainted meat (Trichinosis, Salmonella, Botulism, CJD (Mad Cow)). Many of the practices of conventional farming are the cause of the transmission of these diseases (ex., over-populated feed lots; and feeding cows cows). Research has found forty carcinogenic drugs and pesticides in the fat and muscles of livestock. So let me make this

clear chemicals travel up the food chain from feed crops to livestock to humans becoming more concentrated the higher the chemicals travel.

Imported Produce: The issue with imported produce is that there are a small number of chemicals that the regulatory agencies in this country have banned. Those chemicals are banned from being applied on U.S. food crops, but they are not banned to be produced by U.S. companies and then sold to other countries. The reality is that these banned chemicals (including DDT) are still produced and sold abroad. Those chemicals are then applied to crops overseas. Many of those products make their way back to the United States, and may be sold in the conventional produce markets.

Coffee/Cocoa: Like with other forms of imported produce, conventionally farmed coffee may be subjected to U.S.-banned chemicals (these chemicals aren't always burned off during roasting). When purchasing decaffeinated coffee, be sure to purchase water-processed or Swiss-water-processed decaffeinated coffee. The reason is that the conventional solvent used in decaffeination is methylene chloride, a carcinogenic chemical.

Soy/Canola: Virtually all commercial Soy and Canola grown in the United States is genetically modified today. It is unclear what the effects are from genetic modification. For the human body there may be issues with allergies or disruption of intestinal flora, but this is not clear. What is clear is that genetically modified crops outcompete native crops and can replace native crops in their native geographic distribution. This could cause a significant loss in biodiversity.

Peanuts: Conventional peanut crops are often rotated on the same fields with cotton crops. The Cotton crops are not subject to the same regulation as food stuffs. Chemicals used on cotton are highly toxic and may persist in the soil. When Peanuts are planted in the same tainted soil as a conventional cotton plant they will often take up the pollutants poured on the cotton crop. An additional concern is the fungus, aflatoxin. Aflatoxin is carcinogenic and is found more readily in the conventional peanut market. One hypothesis for why this may be so, is that an ecosystem is healthier when organic farming practices are followed. Therefore, aflatoxin is more likely to "take hold" in the distressed ecosystem common in conventional agriculture.

Strawberries: Strawberries are the most heavily contaminated crop in the U.S. They have the highest content of chemicals which are endocrine disruptors (a class of compounds that may affect fertility). They are often treated with Methyl bromide, a carcinogen. Conventional crops on average are sprayed with 25lbs. of pesticides per acre; Strawberries are sprayed with up to 500 lbs. of pesticides per acre; and may have additional fungicides applied prior to shipping.

Bell Peppers: Bell Peppers have been found to contain some of the most neurotoxic chemicals. Often Bell Peppers are waxed which not only makes it difficult to remove pesticides, but some waxes are fungicides themselves that could be carcinogenic.

Spinach: Spinach has been found to contain systemic pesticides that cannot be washed off; and among the highest amounts of carcinogens and endocrine disrupters found. Please note that 10% of Spinach sampled contained DDT residues.

Other Leafy Greens (inc., Celery): Leafy greens are often found to contain systemic pesticides that cannot be washed off, organophosphates (neurotoxins), and had among the largest amounts of carcinogens. Any leafy greens (including organic) that come from southern California (and are irrigated with water from the Colorado River), may contain perchlorate residues (rocket fuel).

Stone Fruit (esp., Cherries, Peaches, and Apricots): Due to the sweet nature of these fruits, insects are highly attracted. Therefore, they are sprayed a great deal. A high percentage of persistent chemical residues, which can diffuse through the skin, have been found. Stone fruits are one of the few non-animal products that may be treated with anti-biotics.

Melons: Of particular concern is that many melons are from outside of the country, particularly, Mexico. As was mentioned above under imported produce there are additional risks. Cantaloupe and Honeydew have been found to have a high percentage of persistent chemical residues, which can diffuse through the skin. Also beware if melons are waxed, because some of these waxes contain fungicides which may be carcinogenic.

Apples: Apples can be nearly as contaminated as Strawberries. Apples have been found to have a high percentage of persistent chemical residues. Concentrated apple juice that is not organic is also of concern, because much of this product comes from Eastern Europe and has been shown to have radioactive contamination, due to the Chernobyl disaster. Also beware if apples are waxed, because some of these waxes contain fungicides which may be carcinogenic.

Potatoes: Along with Soy, Corn, Canola, and Cotton Potatoes are among the most contaminated by genetic modification. Potatoes are frequently sprayed with a strong neurotoxin, Monitor, and a large amount of fungicides.

Grapes: Grapes often contain a high percentage of persistent chemical residues, which can diffuse through the skin, including methyl bromide a carcinogen.

Rice: A large amount of rice is imported (see above). The dangerous herbicide 2,4,5-T was sprayed on rice prior to 1984, and continues to contaminate the ground water of many rice fields, including those in the Sacramento river valley.

Corn: Nearly 50% of all produce pesticides are sprayed on corn, including atrazine, an immunotoxin; and most corn is now genetically modified.

Processed Food: Processed foods have much more significant issues, because all ingredients are not necessarily included on their labels. The other issue is that processed foods have the same issues as the produce that goes in them, however processed foods may also be subject to "fake" or chemical food stuffs (hydrogenated oils, artificial colors or flavors, artificial sweeteners, preservatives, MSG (in any one of a myriad forms), genetically modified

enzymes, and the list goes on. When buying processed foods remember two things: Look for the 100% organic label, and remember...Organic Junk Food is Still Junk Food.

References

The Staying Healthy Shopper's Guide, by Elson M. Haas, M.D.

The Politics of Cancer, Samuel S. Epstein, M.D.

More info on the Organic Standards Act -

<http://www.ams.usda.gov/nop/NOP/standards.html>

Organic facts - <http://www.ota.com/organic.html>

Organic Consumer's Association (Great information) - <http://www.organicconsumers.org/>

Food Routes.org (Great information) - <http://www.foodroutes.org/>

Info on Bioengineered food - www.thecampaign.org

All of the information you could ever want on pesticides - www.panna.org

Where to find local farmers, markets, coops, etc. - www.localharvest.org

Below, please find a list of the Top 20 foods that are important to buy organically. The list is designed to be cut down to business card size and placed in a wallet for quick reference.

Top 20 Foods to Buy Organically

Baby Food
Meat, Eggs, Dairy
Imported Produce
Strawberries
Soy/Canola
Apples/Pears
Stone Fruit (Cherry, Peach, etc)
Grapes
Melons
Bell Peppers
Celery/Leafy greens
Potatoes
Rice
Corn
Coffee/Cocoa
Peanuts
Processed Foods

Baby food: Infants are very susceptible to neurotoxins

Meat, Eggs and Dairy: Pesticides are stored in animal's fatty tissues where they multiply up to ten-fold, and are then passed on to humans in a greater concentration than found in plants. Animals are often treated with hormones, antibiotics and other drugs.

Imported Produce: Often chemicals are used that are banned in the U.S.

Strawberries: have the highest content of endocrine disrupters; 300 lbs. of pesticides per acre.

Soy/Canola: Virtually all Soy/Canola is genetically modified.

Apples: have a high percentage of persistent chemical residues.

Stone Fruit (Cherries, Peaches, etc.), Grapes and Melons: High percentage of persistent chemical residues, which can diffuse through the skin.

Bell Peppers: Highest level of neurotoxins.

Celery (and other leafy greens): Systemic pesticides that cannot be washed off; most amounts of carcinogens found.

Potatoes: High percentage of GMO; Potent neurotoxin, Monitor; Fungicides.

Rice: A large amount of rice is imported (see above). The dangerous herbicide 2,4,5-T was sprayed on rice prior to 1984, and continues to contaminate the ground water of many rice fields.

Corn: 50% of all produce pesticides are sprayed on corn, including atrazine.

Coffee/Cocoa: U.S.-banned chemicals may be used and aren't always burned off during roasting.

Peanuts: Conventional peanut crops are often rotated with cotton. Chemicals used on cotton are highly toxic and persist in the soil.

Processed Foods: Processed foods have the same issues as each of the individual ingredients; and has additional issues from chemicals and "fake foodstuffs" added during processing.