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Background

The generally agreed on definition of “organic food” requires that food be raised, grown, and processed without man-made chemicals such as fertilizers and pesticides, and that it doesn’t contain artificial preservatives. It also assumes there is no genetic modification involved in the

process. There are other social and philosophical elements to comprehensive “organic” systems including: sustainability, ethical treatment of animals, environmental impacts, global warming policy, and social justice issues such as fair wages for farmers and production workers.

A recent movie “Food, Inc.” fired the flames of controversy over what we should eat and what we should feed our children. The movie is a documentary that aims to change the way America eats and the way American food is produced - more on the movie in a later section.

After spending a significant part of several days devoted to this topic, I now understand why it is such a controversy – it is not a straight forward issue with easy answers. Those on each side of the issue feel the answers are clear and easy, but they are not! For almost every logical point there is a reasonable counterpoint. I present here some of those arguments. In presenting a **POINT**, I will generally use statements or arguments of the movie “Food, Inc.” and other sources with a similar opinion on the topic. The **COUNTERPOINT** will come from organizations and individuals on the other side of the issue such as the American Meat Institute, et. al. Very little of my own opinion or commentary is included – perhaps just an observation or two. I have used several dozen sources

Point/Counterpoint

Meat and Poultry

POINT: Hormone use in meat production is harmful to people. **COUNTERPOINT:** Hormone use in some livestock production is regulated and monitored carefully and has been proven safe for people and reduces environmental impact. Hormones are not used in veal, pig or poultry production. The World Health Organization has declared hormones safe in beef production.

POINT: Hormone use in meat production is harmful to the environment. **COUNTERPOINT:** Hormone use in beef production means more beef can be produced from fewer cattle and less land. In fact, hormone use reduces the land required to produce a pound of beef by 67%. And using fewer cattle to produce more beef reduces production of methane emissions by 40%.

POINT: A ban on the use of antibiotics in feed would reduce antibiotic resistance and otherwise protect public health. **COUNTERPOINT:** The claim that eliminating the use of antibiotics in livestock production will prevent antibiotic resistance in humans is overly simplistic and not supported by science. Antibiotics do improve the animals’ health and they are administered under veterinarian supervision. Withdrawal periods must be followed so that antibiotics don’t remain in the animal’s system when processed for food. The USDA does monitor meat plants for the presence of illegal residues. The fact is, only human use of antibiotics will cause antibiotic resistance. This discussion applies to chickens as well as beef.

POINT: Most U.S. cattle are fed, while in confinement, an unnatural diet of corn when grass would be more natural. **COUNTERPOINT:** Cattle are herbivores with ruminant digestive

systems. Corn is a plant that ruminants, from cattle to deer, will eat and enjoy when given access to it. When corn is fed, it is mixed with other roughage needed for proper digestion.

POINT: U.S. cattle are now predominantly force-fed in close confinement. **COUNTERPOINT:** Most beef produced in the U.S. comes from pasture-fed, grain-finished cattle. These cattle spend most of their lives on a pasture eating grass before going to a feedlot for four to six months. At the feedlot, cattle are grouped into pens that provide space for socializing and exercise. Their well being is monitored closely.

POINT: Today's method of livestock and poultry production is the largest contributor to global warming. **COUNTERPOINT:** Only a small percentage of alleged GHGs are produced by agricultural livestock. In fact, the current methods of conventional farming reduce, by far, the number of animals necessary to feed the same population using organic methods. In the realm of other "green" concerns, changing to a comprehensive system of organic farming would require eliminating some existing forests.

POINT: Conventional methods for raising chickens are inhumane because chickens are typically kept and fed in small confined cages. Organic systems have managed to correct this problem. **COUNTERPOINT:** Young chickens being raised for their meat are not raised in cages – nor are breeding hens. They are raised in large open structures. These are equipped with mechanical systems to deliver feed and water to the birds and have environmental systems, such as ventilation equipment, heaters, and clean bedding.

POINT: Genetic engineering has been used to develop larger "broilers". **COUNTERPOINT:** Chickens raised for meat are larger today than in the past. In this case it is entirely due to selective breeding and nutrition. Breeding is done in the traditional manner with no genetic modification or engineering.

POINT: "Pig welfare" is a term used in the discussion of organic livestock systems. Pigs are inhumanely confined while being fed and brought to "market weight." **COUNTERPOINT:** All pigs are raised in confinement – some outdoors and some in covered or enclosed facilities. Indoor confinement is most effective for protecting from weather and predators. Modern indoor systems also provide a cleaner and healthier environment for the animals than other systems. Additionally, it has been proven that pigs produced in outdoor systems, and particularly those raised antibiotic-free for niche markets may harbor parasites that are not found in pigs produced in indoor systems. Likewise the incidence of salmonella infection in pigs produced in outdoor systems is shown to be higher.

POINT: Animals are commonly treated inhumanely in packing plants. **COUNTERPOINT:** Animal handling in meat plants has never been better. For more than four decades, the industry has been subject to the federal Humane Slaughter Act of 1958. Federal inspectors are present in meat plants at all times and are fully empowered to take action against a plant for violations.

Produce and General Comments

POINT: Organic food is safer and more nutritious. **COUNTERPOINT:** Most experts, including USDA and FDA conclude that organic farming produces safe and wholesome foods, and generally feel conventional and organic have similar characteristics of safety and nutrition. And a comprehensive review of some 400 scientific papers on the real impact of organic foods published by Faldon Magkos and colleagues in 2006 in the journal “Critical Reviews in Food Science and Nutrition,” concluded organic food and conventional food are equally healthy.

POINT: Nearly all food in America is produced on giant factory farms. **COUNTERPOINT:** 98% of farms are owned and operated by families or family corporations, according to the American Farm Bureau Federation. It does appear that certain types of farming can no longer be done by very small operations, whether family owned or not. Hence most feeding of livestock and dairy operations are done today by the larger family farms and family corporate farms. Very few farms are actually “industry owned.”

POINT: We can feed the world using an all-organic approach. **COUNTERPOINT:** According to a 2008 Time Magazine article, to feed the U.S. alone with organic methods, we’d need 40 million farmers. This would be up from the present total of one million!

POINT: Pesticides should be considered inherently unsafe. That is why organic systems totally reject their use. **COUNTERPOINT:** Pesticides are widely used in conventional agricultural methods. However, their use is reducing and yield is increasing. Without the use of insecticides and fungicides, most fruits and vegetable crops would suffer losses of 50% to 90% due to uncontrolled insects and disease. Furthermore, organic fruit and vegetable growers DO use insecticides and fungicides that are approved for organic growers. These are all registered with the EPA and pass rigorous safety tests. But remember that these same rigorous tests are also applied to the synthetic chemicals used by non-organic growers. Because the approved organic pesticides are not as efficient as synthetic chemicals, sometimes a greater volume of chemicals is used by organic growers compared to non-organic farmers.

POINT: Traditional agricultural methods for beef, pork, poultry, and produce are clearly less safe than organic/local growth systems. **COUNTERPOINT:** U.S. products are safe and getting safer. New strategies at the farm level help produce healthier animals. New technologies used in plants have helped destroy bacteria during processing. Pathogens are being monitored aggressively. According to the USDA’s Food Safety and Inspection Service, salmonella is down 71% in market hogs since 1999; down 50% in turkeys since 1997; down almost 58% in ground beef since 1998; and down 33% in broiler chickens since 1999. The incidence of E. coli in fresh ground beef has declined 45% between 2000 and 2008. The incidence of listeria monocytogenes on ready-to-eat meat and poultry products declined 74% between 2000 and 2007.

POINT: Food industry worker safety is a major reason to “go small” and “grow local” as prescribed by the organic food movement. **COUNTERPOINT:** Worker safety is a key concern of companies in meatpacking and poultry processing. According to federal statistics, worker safety has continued to improve in terms of employee injuries, illnesses, and accidental death. Although no accidental death rate is acceptable, the industry has made tremendous strides in

improving worker safety. Bureau of Labor Statistics data show that the actual incidence of injuries and illnesses reported in the Meat Industry for 2007 (the most recent data available) are the lowest since BLS began recording this data in the early 1970s. Over the last 17 years, injury/illness rates in meat processing operations have improved by more than 70%.

Points from Food, Inc. – the Movie

According to the film, big is bad and small is good. Shipping food long distances is bad and local production is good. Additionally, the industry is exploiting farmers and workers in everything from pay to on the job safety – and as a result, those critical of the film’s content say that the makers of the film have an idealistic vision based on incomplete information, naïve interpretations of facts, and ignorance of human nature. They are accused of having a shortsighted local view rather than one which considers world-wide issues. And they are accused of ignoring unintended consequences of their philosophies, if ever implemented.

The movie is an honest presentation of “here is what I believe is the real truth about our food systems and how to change it for the better.” Thankfully we don’t have to wade through a lot of phony pretense that this started out as an objective research project and here are the results. It is clearly presented for what it is – opinion. I carefully listened for reference to research studies backing up its opinions. The only thing close to a research project had to do with the controversy over Monsanto’s legal fights with almost everybody over their production of genetically modified alfalfa seeds and herbicides. This case is now in front of the supreme court.

The main “experts” in the movie are not scientists but rather they are conventional organic farmers who believe strongly that large food companies are exploitive, or that organic farming is the only reasonable production method. One farmer, who raised millions of chickens and who seemed reasonably happy and satisfied doing so, was given very little “face time” and presented somewhat as a “redneck.”

Here are some assertions made in the movie:

- **POINT:** Corn is fed to cattle to selfishly drive down the price of meat. U.S. cattle are now predominantly force-fed in close confinement. **COUNTERPOINT:** most beef produced in the U.S. comes from pasture-fed, grain-finished cattle. These cattle spend most of their lives on a pasture eating grass before going to a feedlot for four to six months. At the feedlot, cattle are grouped into pens that provide space for socializing and exercise. Their well being is monitored closely. Cattle naturally chose grain when offered and do well with it. Other things are added to the corn for nutrition and digestive reasons.
- **POINT:** Thirteen slaughterhouses produce most of the beef in the U.S., according to the movie. **COUNTERPOINT:** according to USDA, there are actually 26 federally-inspected packing plants which process 500,000 cattle or more per year. Together, these 26 plants process 76 percent of the cattle harvest.
- **POINT:** The movie “Food, Inc.” shows some alarming footage of food processing plants and packing plants. **COUNTERPOINT:** It has been discovered that often the sources of this footage was animal rights groups who prefer a completely vegetarian diet for all. As

such many of the footages were out of date, heavily edited, and overly dramatized. The bottom line is that all USDA-inspected meat products are subject to stringent federal humane regulations.

- **POINT:** “Food Inc.” states that 76 million Americans are sickened, 325,000 are hospitalized and 5,000 die each year from food borne illnesses. **COUNTERPOINT:** That report is correct, but it is from a 1999 CDC report. Note the great strides in safety described above over the last decade. In fact, according to CDC, food borne illness is consistently going down since that time, and an updated comprehensive report needs to be issued.
- **POINT:** Corn feeding promotes the development of E. coli. **COUNTERPOINT:** E. coli does appear in livestock. But corn has nothing to do with it. It has been shown that is not the cause. Non corn eating animals have been found with E. coli as well, with roughly the same frequency as in corn fed animals. In fact, the frequency of E. coli in ground beef has reduced by over 45% just since 2000. This theory originated from a 1998 study of just three cows by a Cornell researcher. It was soundly proven to be incorrect, but the rumor remains.
- **POINT:** The movie states that no evaluation has been made that cows should be fed corn. **COUNTERPOINT:** This appears to be a “throw-away” assertion.
- **POINT:** Meat packing jobs are represented as one of most dangerous in the U.S. **COUNTERPOINT:** No source or basis was given for that assertion.
- **POINT:** The movie boldly declares that “sale of organic products helps to save the world.” **COUNTERPOINT:** Universal use of an organic system is not practical when it comes to feeding several hundred million people in our country, and even more impractical when the world-wide population is concerned.

Summary Points and Counterpoints

POINT: When making choices remember all of the representations of problems that people have reported from conventional food production, processing, and distribution systems. **COUNTERPOINT:** There have been many claims by dedicated and loyal proponents of organic systems, and of course we should be concerned in being sensitive to anecdotal reports. But the scientific research and testing do not bear out most of the claims being made about safety and nutrition. Note that in making these claims seldom do we hear reference to credible studies. Often these claims use terms like “linked to” or “associated with”, not references to official research. Pay attention to all you hear, but be wary as to the credibility and substance of any claims.

POINT: Given all relevant considerations of health, environment, and social justice, a comprehensive worldwide organic food system makes real sense. **COUNTERPOINT:** Critics do not disavow some advantages of organic food sources. They feel that locally grown, organic and natural foods should be important niches in our rich and diverse food supply. However, universal use of this system is not practical when it comes to feeding several hundred million people in our country, and even more impractical when the world-wide population is concerned. Their common recommendation for consumers is to eat what you prefer and what you can afford. But

they don't recommend that you choose one over the other because of proven nutritional or safety benefits.

Genetically Modified Organisms

Organic systems do not allow the use of genetically modified organisms (GMOs). Common examples include: cloning of animals and plants, injecting growth hormones in animals, adding antibacterial genes to plants, introducing genes that make organisms bigger or hardier, making new foods by mixing genes from existing ones. Animal genes are sometimes added to plants and vice versa.

Common foods that may contain GMOs are sugar beets, rice, corn, dairy products, and soybeans. Millions of farm animals are fed genetically modified feed. As time goes on, more and more foods will be affected. There is no labeling requirement for genetically modified products.

Without going into scientific details, following are some of the advantages identified by those in favor of permitting GMOs: better quality and taste, increased yields, fewer animal health problems, more efficient production.

Again, without details, here are some of the arguments against permitting GMOs: unknown safety risks in a new technology, potential environmental risks from introducing things which don't naturally occur in nature, social risks (apparently because poorer countries will be at a disadvantage in international trade if they don't have the technologies), ethical risks associated with changing the makeup of animals (the slippery slope), collateral damage such as bacteria and plants becoming resistant to herbicides and pesticides which involve GMO technology.

Concern about GMOs being a significant health, nutritional, environmental problem is speculation. There apparently is no significant evidence supporting the concern. If a consumer is insistent that they not use food which may involve some form of GMO, the only way to be assured of that is to purchase government certified organic food.

Specific Studies (a selection)

Nutritional Quality of Organic versus Conventional Fruits, Vegetables, and Grains, The Journal of Alternative and Complementary Medicine, 2001 – This is a review article in which results of 41 studies were analyzed. This review related that desirable nutrients were somewhat higher in the organic foods. Critics of the review found it interesting to point that, in this review, those of the 41 studies which showed no significant difference between conventional foods and organic foods were excluded from the summary information.

Various Studies Dealing with Pesticide Levels in Foods and their Impact – For example, a study from 2002 found rising relative levels of all pesticides and pesticide residue. Many of these pesticides found in conventionally grown food are synthetic/inorganic chemicals. Organic pesticides are used in organic systems. But remember, the federal government already has

standards for allowable amounts of pesticide residues, and conventional foods are well under those levels. All in all, it looks like conventional versus organic diets are extremely similar. While testing must continue, based on current information, conclusions that organic foods are safer are questionable at best.

Organic Food: Nutritious Food, or Food for Thought? A Review of the Evidence, International Journal of Food Sciences and Nutrition, 2003 – This is a review article and one conclusion was that the differences found in levels of protein and essential amino acids are likely to have no clinical significance. As for vitamins, “minerals” and proteins, they saw no clear advantages reflected in their review.

This article contained a review of some tests on animals after being fed organic and non-organic foods. Organic foods showed very favorable as to subsequent birth rates, mortality rates, weight gain. However, since the study held the levels of nutrition constant, something else must cause these differences – perhaps taste – i.e. the animals preferred the organic food and ate more of it. But these tests were on animals and it is ill-advised to extrapolate conclusions too aggressively to a human population.

Impacts of genetically Engineered Crops on Pesticide Use in the United States: The First Thirteen Years, Organic Center – Based on data from the USDA (2007-2008), author Dr. Charles Benbrook presents compelling evidence linking the increase in pesticide use on genetically engineered “herbicide-tolerant” crops to the emergence and spread of herbicide-resistant weeds.

Monsanto vs. Geertson Seed Farms (and related suits and controversies) – Provides insight into the developing case law relating to environmental and anti-trust implications of Monsanto developing pesticides for use on their “Roundup ready”, genetically engineered alfalfa seed. The cross-pollination occurring from bees traveling up to several miles allegedly causes an environmental hazard, and the actions by Monsanto to protect their products through licensing agreements may have anti-trust implications. The Geertson (anti-trust) case is now in front of the U.S. Supreme Court.

Failure to Yield, Union of Concerned Scientists – This report challenges the generally accepted opinion by concluding that GMOs have only marginally affected yields. Rather, they state, the increase is really due to the advances made in traditional breeding activities.

Food Critics and Experts Chime In

Mark Bittman is an author on cooking and writes for the New York Times. Here are some quotes from his writing and interviews:

“In the six and one half years since the federal government began certifying food as ‘organic,’ Americans have taken to the idea with considerable enthusiasm ... A Harris poll in October 2007 found that about 30 percent of Americans buy organic food at least

on occasion, and most think it is safer, better for the environment and healthier ... It seems to have become the magic cure-all synonymous with eating well, healthfully, sanely, even ethically. But eating 'organic' offers no guarantee of any of that ... It's not unimportant, but it's not the primary issue in the way Americans eat ... But what does organic mean? ... It doesn't mean anything or it doesn't mean much about how animals are treated ... It doesn't mean anything in terms of how the workers who are raising these animals or farming these crops are treated. Doesn't mean anything about where the food is from ... I think the term organic has some meaning, but I think that it's not the most important thing ... (the most important thing is that) the way that people eat best is to eat less crap, to put it bluntly ... (Requirements for organic certification) fall short of the lofty dreams of early organic farmers and consumers ... (As far as nutrition is concerned) the evidence is mixed on whether organic food is more nutritious ... (Americans) should remember that the word itself (organic) is not synonymous with 'safe,' 'healthy,' 'fair,' or even necessarily 'good' ... Everything need not be taken to an extreme and this is another thing that has been taken to an extreme."

Joan Shaffer, a spokeswoman for the Agriculture Department says that the government's organic program "is a marketing program that sets standards for what can be certified as organic. Neither the enabling legislation nor the regulations address food safety or nutrition."

Marion Nestle, a professor at New York University's department of nutrition, food studies and public health reminds us that "organic junk food is still junk food."

Unintended Consequences

Critics of the comprehensive use of organic food would state the following as some of the likely unintended consequences of significantly expanding this organic/local production and distribution:

- Food prices, especially for meat and poultry, would rise dramatically because of the increased costs of their less efficient approach to production and distribution.
- Insistence on local production and local sustainability is not realistic considering the realities of our world and the ever burgeoning population.
- Vast increases in the amounts of land needed for agriculture would result from insistence on free range systems.
- The current level of environmental controls would not be achievable in such an open system.
- The high cost and inefficient distribution would exacerbate, rather than help, the underfed populations of the world.
- Local production would necessarily result in many fresh fruits and vegetables, which are seasonal in nature, to be temporarily unavailable.
- Popular imported foods such as "salamis from Italy," or "Danish hams," etc. would be "politically incorrect" and soon unavailable to most consumers.

- Even limited success of comprehensive organic production and distribution would rely on consumers making choices which are very “far fetched” when human nature is seriously brought into the equation.
- Unreasonable expectations regarding improved nutrition and safety will occur.

“I don’t believe there’s probably a huge difference nutritionally, though sometimes organic produce looks better” – Mary Ellen Camire, a professor of food science and human nutrition at the University of Maine.

“The risks (of getting sick from pesticide residue) are infinitesimal to begin with ... Eating may have some level of risk associated with it, but not eating is fatal” – Carl Winter, director of the Foodsafe program at the University of California at Davis and a food toxicologist and professor of food science and technology.

I report you decide.