

# Fact or Fiction?



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## Organic Versus Synthetic

During my school days, organic meant something containing carbon. Today, the definition of “organic” has broadened considerably, especially in regards to food. Organic foods are said by their proponents to be foods grown without the use of pesticides or “chemical” fertilizers. They are claimed to be safer for us and more nutritious than conventionally produced food. Let’s look at these claims.

Carl Djerassi, co-inventor of the pill and professor at Stanford University says,<sup>1</sup> “Grown totally organic, or some such hyperbole is a manifestation of ignorance, of linguistic slovenliness or of deliberate imprecision. How does one grow any plant without inorganic components: fertilizers, trace metal constituents and the like? Furthermore, let those who inevitably equate synthetic organic chemicals with toxicity remember that some of the most powerful and lethal poisons are naturally occurring, ‘organic’ substances.”

Melvin Bernarde adds,<sup>2</sup> “Environmentalists have sequestered the term ‘organic,’ which to the scientific world has always meant any substance containing carbon, and they redefined it to mean food grown without pesticides. Then they created ‘health’ food stores, where the new organic food could be purchased. To make this work, they created the myth that pesticides cause cancer and made it stick. The public bought the myth. A pesticide/cancer cause-effect relationship has not been found for us humans.”

Let’s look at pesticides. Alex Avery<sup>3</sup> reports that the biggest myth of all about the term “organic” is that it means pesticide-free. Why? Because they aren’t pesticide free. Organic farmers are allowed to use numerous natural poisons as pesticides. These include:

- *Bacillus thuringiensis* – a natural biopesticide which causes fatal lung infections in mice.<sup>4</sup>

- Pyrethrum – a mixture of nerve toxins squeezed from African chrysanthemums deemed by the EPA to be a “likely human carcinogen.”<sup>3</sup>
- Rotenone – a neurotoxin that causes symptoms similar to Parkinson’s disease when administered to rats.<sup>3</sup>
- Sulfur – which Cornell University concluded was the most environmentally harmful substance widely used in farming.<sup>5</sup>
- Copper sulfate – which is still used in some places but was recently banned by European regulators because of environmental concerns. Electroplaters can relate to these words from Alex Avery,<sup>6</sup> “We all know darn well that if the shoe were on the other foot, and non-organic farmers were using copper sulfate, proponents of organic agriculture would be screaming to high heaven about the eco-sins of copper sulfate and would be demanding that it be banned and that only safe, biodegradable synthetic fungicides be allowed.”

Alex Avery reports on recent research that revealed one-fourth of all fruits and vegetables marketed as organic had significant residues of synthetic pesticides in them. Further, nearly a third of the time when the synthetic pesticides residues were found on organic produce, they were present at a concentration even higher than the average levels found on conventional fruits and vegetables.<sup>3</sup> However, if you are an organic food proponent, before throwing your food into the garbage can, realize that this research has very little to do with real food safety. The traces of synthetic pesticides on both the conventional foods and the organic foods were well below safety levels set by the government. These standards use 100-fold safety margins. As Avery adds,<sup>3</sup> “After exhaustive research, the National Research Council concluded in 1999 that residues of synthetic pesti-

cide posed a lower theoretical cancer risk than the natural carcinogens found in our food, but that neither were present in high enough amounts to worry about.”

This type of research is mostly a testament to our technical prowess. As I’ve often reported in this column, 1 part per million (1 ppm), equivalent to one second in less than 12 days was the analytical capability in the not too distant past. Now 1 part per trillion (1 second in 32,000 years!) and even better are possible. These days, researchers can find any thing in anything.

### Fertilizer

An old man was working in the yard of a home for the elderly in a town near us in Virginia, when a farmer walked past with a wagonload of manure.

“Where are you going with that?” the old man asked.

“I’m gonna put it on my strawberries, if it’s any of your business,” the farmer snipped.

“You ought to be in here,” the old man said. “They put sugar and cream on ours.”  
—Willard Scott

Now, some words about fertilizer. Manure is the fertilizer of choice for organic crops. Food grown in manure is more likely to be infested with bacteria and bacteria can cause serious health problems. Some people get very sick. The last time you had the flu, it might not have been flu. It might have been *E. coli* or salmonella. The Centers for Disease Control report that every year thousands of Americans die from bacteria in food.<sup>7</sup>

Thomas DeGregori<sup>8</sup> reports that animal manure is the biggest reservoir of deadly new strains of *E. Coli* and salmonella, nasty bacteria that are afflicting and killing so many people. He adds, “We are often

told that the heat from composting will kill the microbes. A temperature of 160°F [71°C] is required to kill harmful microorganisms. Few organic farmers actually use a thermometer to test the temperature. Further, studies indicate that *E. coli* bacteria can live at least seventy days in a compost pile and therefore it would take an extended period at 160 degrees heat to kill it."

Another problem with manure is that in Holland, Germany and the UK, excessive manure breakdown has led to eutrophication (an overly nourished state caused by too many nutrients) of lakes and rivers. Also, the volatile ammonia from fresh manure has damaged woodland. Microbial breakdown of manure produces oxide and methane.<sup>9</sup>

### Nutrition and taste

"There is simply no verified or verifiable difference in the taste or nutritional quality between 'organically' grown food and those using modern methods of fertilization," says Thomas DeGregori. This is in spite of the fact that they derive nutritive superiority from using manure, not artificial fertilizers.<sup>10</sup> The British Foods Standards agency recently declared there was no evidence such products were either safe or nutritionally advantageous. Jay Rayner,<sup>11</sup> a restaurant critic notes, "It is relevant that I have yet to find a top flight chef in Britain who will claim to use only organic ingredients. They know organic is not always best." (For the record, I am duty bound to report that my wife disagrees with this information on taste. She firmly believes that organic tastes best.)

### Some final words

Richard Gallagher<sup>12</sup> presents this interesting analysis. He asks, "Are organic foods safer? No. Well, how about taste? No, again. Given all this, how has the organic movement become so successful? Why have so many been taken in?" His answer is "the placebo effect." He adds, "In retrospect, the clues have been around for a while. Consider this consumer's quote from *CNN Student News*, a TV program for classrooms: 'You feel healthy shopping [for organic foods]. You are rewarding yourself both mentally and physically by eating healthy foods. It's worth the cost in the long run.'" This is similar to John Stossel reporting,<sup>13</sup> "Our cameras caught customers in 'health food' markets fondling organic vegetables as if they were religious icons."

One last item. You can even find healthy, organic food for your dog or cat. These products claim use of organic ingredients which avoid the development of food problems with digestive organs. The food also contains seaweed and spirulina, which improve coat condition and vitality.<sup>14</sup> I kid you not. Organic pet food sales were up 63% last year and are growing at nearly three times the rate of human organic food sales.<sup>15</sup> *P&SF*

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### Answers to I.Q. Quiz #421

1. There is much more surface area in a corrugated cathode when compared to a flat one, and more metal impurities can be removed in a given time.
2. The sulfur-containing bright nickel is more active electrochemically and has a higher corrosion potential.
3. Silver (about 6% higher than copper)
4. Titanium anode baskets do not corrode.
5. 5%; water from oceans, rivers, ponds, lakes, fog, dew, etc.



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