“Organic” Foods: Certification Does Not Protect Consumers

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If you, as a consumer, want to purchase a fake or a fraud of one kind or another, should your government guarantee your right to do so? More than that, is your government obligated to prosecute one who, knowing of your propensity for fraud, tricks you into buying the genuine in place of buying the fake? Remembering that “your government” is all the rest of us, is it right for you to take our time and money to underwrite such ridiculous exercises as making sure you are cheated when you want to be cheated? And must we penalize the man who breaks his promise to cheat you?

These astute questions were raised in 1972 by Dick Beeler, editor of *Animal Health and Nutrition*, who was concerned about laws being adopted in California and Oregon to certify “organic” foods. Those laws signaled the beginning of efforts that culminated in 1990 with passage of the U.S. Organic Foods Production Act (OFPA), which ordered the U.S. Department of Agriculture (USDA) to set certification standards. Although USDA had opposed passage of the act, the Alar scare plus a campaign by environmental, consumer, and farm groups persuaded Congress to include it in the 1990 Farm Bill [1].

As directed by the law, the Secretary of Agriculture established a National Organic Standards Board to help develop a list of substances permissible in organic production and handling and to advise the Secretary on other aspects of implementing a National Organic Program. In 1992, the Secretary appointed 15 people, 8 of whom were industry members. The board held 12 full-board meetings and 5 joint committee meetings and received additional input through public hearings and written submissions from interested persons. It presented its recommendations to the Secretary in 1994 and issued 30 subsequent addenda. Regulations were proposed in 1997, modified in 1998, and are now in effect. As of October 21, 2002, producers who meet USDA standards are permitted to display the seal pictured here on their packaging.

Total retail sales of the organic industry reportedly rose from $1 billion in 1990 to $7.8 billion in 2000 [3]. “Certified” organic cropland production expanded from about 400,000 acres in 1992 to 1,350,000 in 1999 [2] to 5 million in 2016 {3]. Despite this growth, the organic industry represents a very small percentage of total agricultural production and sales—only about 0.3% of U.S. cropland and 0.2% of U.S. pasture was certified organic in 2001 [4,5]. Industry trade organizations state that the sales of organic produee reached about $18 billion in 2006, rose

steadily to about $40 billion in 2015 [6], and reached $52.5 billion in 2018 [6]. However, the numbers reported by the USDA National Agricultural Statistics Service are much lower [3].

Nebulous Definitions

The term "organic foods" refers to the methods used to produce the foods rather than to characteristics of the food themselves. The most common concept of "organically grown" food was articulated in 1972 by Robert Rodale, editor of *Organic Gardening and Farming* magazine, at a public hearing:

Food grown without pesticides; grown without artificial fertilizers; grown in soil whose humus content is increased by the additions of organic matter, grown in soil whose mineral content is increased by the application of natural mineral fertilizers; has not been treated with preservatives, hormones, antibiotics, etc. [8]

In 1980, a team of scientists appointed by the USDA concluded that there was no universally accepted definition of "organic farming." Their report stated:

The organic movement represents a spectrum of practices, attitudes, and philosophies. On the one hand are those organic practitioners who would not use chemical fertilizers or pesticides under any circumstances. These producers hold rigidly to their purist philosophy. At the other end of the spectrum, organic farmers espouse a more flexible approach. While striving to avoid the use of chemical fertilizers and pesticides, these practitioners do not rule them out entirely. Instead, when absolutely necessary, some fertilizers and also herbicides are very selectively and sparingly used as a second line of defense. Nevertheless, these farmers, too, consider themselves to be organic farmers [9].

Passage of the Organic Foods Production Act forced the USDA to develop an official definition. On December 16, 1997, the USDA Agricultural Marketing Service proposed rules for a National Organic Program [10]. The proposal applied to all types of agricultural products and all aspects of their production and handling, ranging from soil fertility management to the packaging and labeling of the final product. The proposal included: (a) national standards for production and handling, (b) a National List of approved synthetic substances, (c) a certification program, (d) a program for accrediting certifiers, (e) labeling requirements, (f) enforcement provisions, and (g) rules for importing equivalent products. The proposed rule defined organic farming and handling as:

A system that is designed and managed to produce agricultural products by the use of methods and substances that maintain the integrity of organic agricultural products until they reach the consumer. This is accomplished by using, where possible, cultural, biological and mechanical methods, as opposed to using substances, to fulfill any specific function within the system so as to: maintain long-term soil fertility; increase soil biological activity; ensure effective pest management; recycle wastes to return nutrients to the land; provide attentive care for farm animals; and handle the agricultural products without the use of extraneous synthetic additives or processing in accordance with the Act and the regulations in this part.

The weed and pest-control methods to which this refers include crop rotation, hand cultivation, mulching, soil enrichment, and encouraging beneficial predators and microorganisms. If these methods are not sufficient, various listed chemicals can be used.
(The list does not include cytotoxic chemicals that are carbon-based.)
The proposal did not call for monitoring specific indicators of soil and water quality, but left the selection of monitoring activities to the producer in consultation with the certifying agent.

For raising animals, antibiotics would not be permitted as growth stimulants but would be permitted to counter infections. The rules permit up to 20% of animal feed to be obtained from non-organic sources. This was done because some nutrients (such as trace minerals) are not always available organically. Irradiation, which can reduce or eliminate certain pests, kill disease-causing bacteria, and prolong food shelf-life, would be permitted during processing. Genetic engineering would also be permissible.

Health-food-industry trade and consumer publications expressed widespread dissatisfaction with the 1997 proposal. The Henry A. Wallace Institute for Alternative Agriculture, for example, called it "Fatally flawed." [11] The Organic Farmers Marketing Association stated:

The definition of organic as written in the proposed national organic standards lacks the holistic approach central to organic practices. The proposed rules take a reductionist approach to organic food production that eliminates key concepts such as the health of the agro-ecosystem and biodiversity on the farm.

The USDA received more than 270,000 comments on the proposed rules [12]. One distributors' association official wrote that if the rules are implemented, its members would seek to buy its agricultural products from foreign sources. Others complained that the proposed fees were too high. Other objections included permitted use of amino acids as growth promoters, antibiotics (when necessary to save the animal's life), synthetic animal drugs, food additives, and animal feed from non-organic sources. Certification agencies with "higher standards" objected that they would be prohibited from stating this on their labels. Some poultry farmers objected to provisions enabling intermingling of range-free poultry and other poultry. However, the vast majority of the objections pertain to the provisions that permitted irradiation, genetic engineering, and the use of sewage sludge as fertilizer
[13]. The final regulations,published in December 2002, eliminated these three provisions. Canada, which in 1999 became the first country to establish a national organic standard, also excludes these methods [14].

Premium Price—For What?

The organic rules are intended to address production methods rather than the physical qualities of the products themselves. In a news release that accompaied the 1997 rules, Glickman stated:

What is organic? Generally, it is agriculture produced through a natural as opposed to synthetic process. The natural portion of the definition is fairly obvious, but process is an equally critical distinction. When we certify organic, we are certifying not just a product but the farming and handling practices that yield it. When you buy a certified organic tomato, for instance, you are

buying the product of an organic farm. And, consumers are willing to fork over a little more for that tomato. They've shown that they will pay a premium for organic food. National standards are our way of ensuring that consumers get what they pay for.

I disagree. Many consumers who "fork over a little more" believe that the foods themselves are more nutritious, safer, and tastier. But the USDA proposal itself noted that, "No distinctions should be made between organically and non-organically produced products in terms of quality, appearance, or safety." In other words, no claim should be made that the foods themselves are better—or even different! Some consumers believe that buying "organic" foster agricultural practices that are better for the environment.

Rodale Press's New Farm Organic Price Index (OPX) compared the prices of about 40 organic and conventionally grown foods in 2003 and 2004. The organic foods tended to cost signiifcantly more, as they had in previouly published studies.

More Nutritious?

Organic foods are certainly not more nutritious [15]. The nutrient content of plants is determined primarily by heredity. Mineral content may be affected by the mineral content of the soil, but this has no significance in the overall diet. If essential nutrients are missing from the soil, the plant will not grow. If plants grow, that means the essential nutrients are present. Experiments conducted for many years have found no difference in the nutrient content of organically grown crops and those grown under standard agricultural conditions.

Safer?

Many "organic" proponents suggest that their foods are safer because they have lower levels of pesticide residues. However, the pesticide levels in our food supply are not high. In some situations, pesticides even reduce health risks by preventing the growth of harmful organisms, including molds that produce toxic substances [16].

To protect consumers, the FDA sets tolerance levels in foods and conducts frequent "market basket" studies wherein foods from regions throughout the United States are purchased and analyzed. The USDA's Pesticide Data Program (PDP) has been monitoring pesticide residues since 1992 and publishes its findings annually. The Monitoring Programs Division administers PDP activities, including the sampling, testing, and reporting of pesticide residues on agricultural commodities in the U.S. food supply, with an emphasis on those commodities highly consumed by infants and children. The program is implemented through cooperation with State agriculture departments and other Federal agencies. The studies have always concluded that America's dietary intakes are well within international and Environmental Protection Agency standards.

Most comparative studies conducted since the early 1970s have found that the pesticide levels in foods designated organic were similar to those that were not. In 1997, *Consumer Reports* purchased about a thousand pounds of tomatoes, peaches, green bell peppers, and apples in five cities and tested them for more than 300 synthetic pesticides. Traces were detected in 77% of

conventional foods and 25% of organically labeled foods, but only one sample of each exceeded the federal limit [17].

Pesticides can locate on the surface of foods as well as beneath the surface. The amounts that washing can remove depends on their location, the amount and temperature of the rinse water, and whether detergent is used. Most people rinse their fruits and vegetables with plain water before eating them. In fact, *Consumer Reports on Health* has recommended this [18].*Consumer Reports* stated that it did not do so because the FDA tests unwashed products. The amount of pesticide removed by simple rinsing has not been scientifically studied but is probably small. *Consumer Reports* missed a golden opportunity to assess this.

Do pesticides found in conventional foods pose a health threat? Does the difference in pesticide content warrant buying "organic" foods? *Consumer Reports* equivocates: "For consumers in general, the unsettling truth is that no one really knows what a lifetime of consuming the tiny quantities of foods might do to a person. The effect, if any, is likely to be small for most individuals—but may be significant for the population at large." But the editors also advise, "No one should avoid fruits and vegetables for fear of pesticides; the health benefits of these foods overwhelm any possible risk."

Manfred Kroger, Ph.D., Quackwatch consultant and Professor of Food Science at The Pennsylvania State University, has put the matter more bluntly:

Scientific agriculture has provided Americans with the safest and most abundant food supply in the world. Agricultural chemicals are needed to maintain this supply. The risk from pesticide residue, if any, is minuscule, is not worth worrying about, and does not warrant paying higher prices.

A more recent review concluded:

- Organic production is a respectable effort to produce food without contaminants, but there is a lack of scientific evidence supporting the idea that organic food is an obviously safer choice.
- The consumer belief in finding a safer food alternative through organic production is not supported by the scientific community due to the lack of consistent scientific evidence and often contradictory reports.
- Personal convictions relying on an emotional route instead of a rational one lead to a divergence between the public and scientists regarding health hazard perceptions.
- Although organic food has a lower incidence of pesticide residues, the frequency of pesticide-contaminated food is stable and most of the time the residues are below the allowable limits. It is realistic to say that overall the detected contaminants do not [cause] any major health concern for the general population [19].

Tastier?

"Organically grown" foods are not inherently tastier than conventionally grown foods. Taste is influenced by freshness, which may depend on how far the products must be shipped from

farmer to consumer. What kinds of locally grown fruits and vegetables are available varies from community to community. Whether they are organically or conventionally produced is unlikely to make any difference.

In the early 1990s, Israeli researchers made 460 assessments of 9 different fruits and vegetables and no significant difference in quality between "organic" and conventionally grown samples [20]. The *Consumer Reports*' study found no consistent differences in appearance, flavor, or texture.

Organically produced ("range-free) poultry are said to be raised in an environment where they are free to roam. To use this term, handlers must sign an affidavit saying that the chickens are provided with access to the outdoors. A recent taste test conducted by *Consumer Reports* rated two brands of free-range chicken as average among nine brands tested. Its March 1998 issue stated few chickens choose to roam and that one manager said that free-ranging probably detracts from taste because it decreases the quality of the bird's food intake [21].

Better for the Environment?

Many buyers of "organic" foods believe that the extra money they pay will ultimately benefit the environment by encouraging more farmers to use "organic" methods. But doing this cannot have much effect because "organic" agriculture is too inefficient to meet the world's food needs and environmental impact also variues from one type of crop to another [22].
Moreover, the dividing line between organic and conventional agriculture is not sharp because various practices are not restricted to one or the other. For example, "organic" farmers tend not to use pesticides, but faced with threatened loss of crops, they may change their mind. If certain patterns of pesticide use cause more harm than good and there is a way to remedy the situation, the people concerned about it can seek regulatory solutions. I don't believe that paying extra for food will benefit anybody but those who sell it.

Special Healing Powers?

Many offbeat practitioners recommend organically grown foods as part of their alleged treatment regimens. The most extreme claim" I have seen comes from A Perfect Healing, a small Florida-based nonprofit in "committed to the use, education, research, and agriculture of organically grown foods and nutritional supplements in the recovery from disease." [23] Its Guidestar summary claimed:

Organic foods embody thousands of antibiotic and anti-viral elements that are present only in highly composted organic soil. When we eat these foods, they deposit these elements absorbed from the soil into our bodies, where they can then go on to patrol and clean out all forms of disease and prevent further attack. Even cancers and other forms of seemingly non-infectious disease have been cured this way. These disease fighting elements and the high level of nutrients that organic foods receive from such a nutritious soil are very powerful. They have been proven to return many a diseased individual back to health [24].

A 2017 meta-analysis that examined whether eating organic foods is associated with better health concluded: “The beneficial health effects of vegetables and fruits and other foods recommended in a balanced diet are well documented, but the jury is still out and not ready to conclude whether choosing the organic alternatives would provide additional benefits.” [25]

Prosecution

In 2019, Randy Constant, who led the largest known “organic” food fraud scheme in U.S. history, was sentenced to serve 122 months in prison [26]. Constant’s scheme called for farmers to add small amounts of USDA-certified grains to conventionally grown grains and represent the products as certified. The products were then priced higher than conventional grains but lower than certified products whose sellers who were complying with USDA rules. The grains were sold mainly for use as animal feed to companies that marketed organic meat and meat products. Three other farmers whom he recruited to join his scheme received shorter sentences. All four had pleaded guilty to wire-fraud charges and cooperated with investigators. A fifth farmer pleaded guilty in the case and is awaiting sentencing. Constant admitted that his scheme involved at least $142,433,475 in grain sales with the vast majority of sales being fraudulent. As part of his plea, he agreed to forfeit $128,190,128 in proceeds.

The Bottom Line

The revised rules went into effect on October 21, 2002. The latest USDA definition states:

Organic food is produced by farmers who emphasize the use of renewable resources and the conservation of soil and water to enhance environmental quality for future generations. Organic meat, poultry, eggs, and dairy products come from animals that are given no antibiotics or growth hormones. Organic food is produced without using most conventional pesticides; petroleum-based fertilizers or sewage sludge-based fertilizers; bio-engineering; or ionizing radiation. Before a product can be labeled “organic,” a Government-approved certifier inspects the farm where the food is grown to make sure the farmer is following all the rules necessary to meet USDA organic standards. Companies that handle or process organic food before it gets to your local supermarket or restaurant must be certified, too [27].

A comprehensive review published the same year concluded:

- Studies comparing foods derived from organic and conventional growing systems were assessed for three key areas: nutritional value, sensory quality, and food safety. It is evident from this assessment that there are few well-controlled studies that are capable of making a valid comparison. With the possible exception of nitrate content, there is no strong evidence that organic and conventional foods differ in concentrations of various nutrients.
- While there are reports indicating that organic and conventional fruits and vegetables may differ on a variety of sensory qualities, the findings are inconsistent.
- While it is likely that organically grown foods are lower in pesticide residues, there has been very little documentation of residue levels [28].

In 2006, the Institute of Food Technologists concluded:

While many studies demonstrate . . . qualitative differences between organic and conventional foods, it is premature to conclude
that either food system is superior to the other with respect to safety
or nutritional composition. Pesticide residues, naturally occurring
toxins, nitrates, and polyphenolic compounds exert their health
risks or benefits on a dose-related basis, and data do not yet exist
to ascertain whether the differences in the levels of such chemicals between organic foods and conventional foods are of biological significance [29].

In 2009, after reviewing 162 scientific studies published between 1958 and February 2008, the British Food Standards Agency concluded:

No evidence of a difference in content of nutrients and other substances between organically and conventionally produced crops and livestock products was detected for the majority of nutrients assessed in this review suggesting that organically and conventionally produced crops and livestock products are broadly comparable in their nutrient content. The differences detected in content of nutrients and other substances between organically and conventionally produced crops and livestock products are biologically plausible and most likely relate to differences in crop or animal management, and soil quality. It should be noted that these conclusions relate to the evidence base currently available, which contains limitations in the design and in the comparability of studies. There is no good evidence that increased dietary intake, of the nutrients identified in this review to be present in larger amounts in organically than in conventionally produced crops and livestock products, would be of benefit to individuals consuming a normal varied diet, and it is therefore unlikely that these differences in nutrient content are relevant to consumer health [30].

Nevertheless, if you want to pay extra for your food, the U.S. Government will help you do so. Violators of the rules can be fined up to $10,000 per violation. But organic "certification," no matter what the rules, will not protect consumers. Foods certified as "organic" will neither be safer nor more nutritious than "regular" foods. Nor is there any logical reason to conclude that they have any special disease-curing properties. They will just cost more and may lessen public confidence in the safety of "ordinary" foods. Instead of legitimizing health nonsense, our government should do more to attack its spread.

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