

Look What's Out There

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To Go or Not to Go Organic?

"Organic," what does it really mean to consumers and producers?

In case you missed the definitions, you will begin to see these words on food labels.

100% organic: every ingredient must be organic. May also carry USDA-Organic seal.

Organic: 95% of the ingredients must be organic. I think it means 95 percent of the ingredients by weight. May also carry USDA-Organic seal.

Made with organic ingredients: at least 70% organic ingredients. No added sulfites.

Some organic ingredients: less than 70% organic ingredients. Can list them separately.

Organic foods can be officially labeled as of October 21, 2002, if the producer has been certified as organic by a certification body recognized by the USDA. If a producer or processor has gross sales of less than \$5,000 annually, they do not have to be certified to use an organic label, but even small producers/processors are subject to audits by the USDA National Organic Program.

Depending on your point of view, organic foods are the next big thing or small potatoes. Organics make up less than 2 percent of the Nations food supply and take up less than 1 percent of U.S. cropland. However, the organic food market has grown nearly 200 percent over the last decade, and sales for 2002 are expected to be more than \$11 billion (if you think this figure is staggering, just think how much U.S. agriculture must be worth).

Fruits and dairy are leaders in the organic market. More than 49,000 acres are planted to organic fruit. Organically produced fruits still have many of the properties that allow them to be shipped some distance from the farm. Sales of organic dairy products grew 500 percent from 1994 to 1999. Many consumers are concerned about bovine growth hormone used to make cows produce more milk, even though the FDA has judged the milk to be safe. Ironically, milk prices to farmers in some areas have declined because the local supply of milk exceeds demand.

There are three big reasons why people buy organic products. Many people are concerned about pesticide residues on food. A lot people consider organic production methods better for the environment. A large number of people report that organic foods have better taste or more nutrients.

Unfortunately, nothing is simple. Even though many people will not like it, we are going to make the decision to go organic more confusing.

Issue#1: pesticide residues on food.

The National Academy of Sciences reported that the levels of naturally occurring toxins are typically more abundant in foods than synthetic chemicals. Additionally, toxic chemicals are not a major concern in the human diet. Much greater risks are associated with too much fat, too many calories, or an excess of alcohol. The National Cancer Institute, United States Department of Agriculture, Centers for Disease Control and Prevention, American Cancer Society, Produce Marketing Association, United Fresh Fruit and Vegetable Association, National Alliance for Nutrition and Activity, and the Association of State and Territorial Directors of Health

Promotion and Public Health Education encourage consumption of five fruits/vegetables per day; they do not distinguish between organic production and conventionally grown produce.

Many people think that organic production means no pesticides are used. It is not true. The USDA has established a list of chemicals that can be used in organic production. Some of the chemicals are naturally occurring pesticides, such as pyrethrum derived from chrysanthemums or azadirachtin derived from the neem tree. Even though they are naturally occurring, these chemicals are used because they are poisons. The oral LD₅₀ values of pyrethrum in rats range from 200 mg/kg to greater than 2,600 (the wide range is caused by variability in the components of pyrethrum); in contrast, the oral LD₅₀ for aspirin given to rats is 1000 mg/kg. Pyrethrum can be five times more toxic than aspirin. Some synthetic pesticides are more toxic than pyrethrum, and some are less toxic.

One might argue that pyrethrum, neem, and other natural pesticides break down more quickly. This argument is not very helpful. One of the most toxic synthetic pesticides ever made, mevinphos, also broke down in a very short time, with a soil half-life of about three days. Pyrethrum breaks down within hours in sunlight. However, in a vermiculite system, the half-life of azadirachtin-Aranged from 13 to 46 days.

Finally, many pesticide opponents point out that we do not know the long-term effects of synthetic pesticides and their breakdown products, and we do not know the potential effects of pesticide mixtures. This statement is true, but it applies equally to naturally occurring pesticides as well.

Issue#2: the environment.

There is no doubt that pesticides can cause environmental problems. Pesticides and fertilizers can run off into surface water or potentially contaminate groundwater. In organic production, manures often replace synthetic fertilizers. Excess application of manures can

also cause serious water contamination problems. With both synthetic fertilizers and manures, the problems are caused by improper or excess application.

Natural pesticides also pose risks to the environment. Pyrethrum is highly toxic to fish. Rotenone, another natural product, is used to kill unwanted fish in lakes and ponds. Nicotine is also natural, but it is not allowed in organic production because it is so dangerous.

Believe it or not, pesticides can also help the environment. The EPA has called erosion one of the primary threats to surface water. Additionally, erosion carries topsoil (along with fertilizers/pesticides) away from farmland. The result is more polluted water and less productive farms. No-tillage and reduced tillage farming can greatly reduce or eliminate erosion. However, no-till/reduced till operations typically rely on herbicides to keep weeds from competing with crop plants. To control weeds, organic farmers often substitute plowing for herbicides. Regular plowing greatly increases erosion. Additionally, repeated tractor rides across the field mean more soil compaction, more noise, and more air pollution.

Pesticides can also help the environment in another way. Suppose Farmer Brown is able to produce 100 bushels of corn per acre if he uses synthetic fertilizers and pesticides. He leaves another 100 acres of hilly land out of production because he worries about erosion, and Farmer Brown likes to see the birds and other wildlife that live on the unused acreage. One day, Farmer Brown switches to organic production. He likes the idea of using fewer pesticides and no synthetic fertilizers, but he discovers he can only grow 50 bushels of corn per acre. The farmer's family depends on the income from 100 bushels of corn per acre, so the farmer has to plow up the 100 acres of hilly land to maintain the family income. Erosion increases, and the habitat loss eliminates most of the wildlife.

Although it illustrates a valid point, real life is even more complicated than our example. For some crops and in some areas, organic production can be equivalent to conventional production, and the farmer may be able to sell organic crops at a higher price. Unfortunately, many people think organic production can replace conventional production in every location and for every crop.

Issue#3: better taste and nutrition.

No one knows if organic produce is more nutritious, and I would be hard to convince. The plant does not know if the nitrogen, phosphorous, etc. came from synthetic or natural sources.

Flavor is a different issue. In many cases, organic produce is produced and sold locally. *Local* is the key word. Produce shipped from California to Georgia must be able to withstand the journey. Tomato varieties grown for shipping are selected primarily for shipping qualities, not flavor. Additionally, the produce must be picked before it is ripe. I have seen mountains of tomatoes discarded in Florida because they were too ripe to ship (it also created a smuggling operation for the discarded tomatoes, but that is another story). I strongly support locally grown produce because you can get better varieties picked at the proper time. However, I do not think you could distinguish between local produce grown organically and local produce grown with conventional methods. In many cases, a small, local farm can manage pests with fewer pesticides, but local and organic are not synonymous.

In the end, the choice between organic and conventional is not clear-cut. Unfortunately, it also leads to another debate (fortunately for you, I will not conduct it here). If organic produce really is better for some reason and if it costs more, do we condemn the less affluent portion of society to food that is inferior?

Actions speak louder than words, and I would be less than honest if I did not reveal my own buying and gardening habits. I pay no attention to the organic designation when I shop. No matter how you define it, "organic" is primarily a marketing technique. In my own garden, I select vegetables and fruits that I can grow better at home or items that are expensive in the grocery. I can grow better tomatoes and Brussels sprouts than I can buy anywhere. We have an asparagus patch because my family likes asparagus, but it is expensive to buy. We use little or no pesticides because we do not need them very often. However, a commercial farm could not afford many of our pest control techniques, like newspaper mulches or hand picking insects.

One may complain that this discourse did not defend any particular case. That is true. I do not want to make up your mind or help you spend your money. However, I do want you to understand both sides of the argument.

Should producers consider converting to an organic operation? Follow the money. Remember it takes three years to convert to a certified-organic operation. Organic produce typically commands a higher price only until the demand is satiated. For a while, there was a glut of organic apples, and prices plummeted. Converting your operation to organic is a big decision. Talk to others that have made the switch before you take the plunge.

I do not believe that organic production provides significant risk reduction for consumers and maybe not for the environment, but organic production definitely reduces the health risk for pesticide applicators. Pesticide handlers are at risk, particularly when handling pesticide concentrates. Additionally, organic production will reduce your pesticide costs (your pest control costs may not be reduced as you substitute other things for pesticides) and eliminate many of the headaches associated with pesticide wastes. (*Newsweek*, 9-30-02 for many

of the facts; the opinions are my own- Dr. Paul Guillebeau, Associate Professor & Extension Entomologist, Department of Entomology University of Georgia).

Pesticide News

More Court Rulings for Water-Applied Pesticides

A federal appeals court ruled in early November that the aerial spraying of pesticides into U.S. waters requires a Clean Water Act (CWA) permit, potentially extending controversial permit requirements on the use of herbicides and other chemicals in irrigation channels and mosquito control efforts. The ruling may complicate efforts by the Bush administration and congressional Republicans to ensure that federal pesticide law, not the CWA, is the governing statute in cases where pesticides are applied to water. The ruling may also underscore fears raised by mosquito sprayers and other users of aquatic chemicals that EPA's plans to limit Clean Water Act permit requirements may not ward off citizen suits contesting the pesticide usage. One source stated that the ideal situation is to have EPA permit the application of pesticides to waters of the United States and that if they did not move forward to permit these activities, citizen groups will likely continue suing the Agency to require permits.

The U.S. Court of Appeals for the 9th Circuit ruled in *League of Wildlife Defenders, et al. v. Forsgren, et al.* November 4th that the U.S. Forest Service (USFS) was unlawfully spraying insecticide into national forests in Washington and Oregon without the necessary clean water permits. In the suit, USFS officials conceded they were spraying pesticides directly into rivers and other water bodies. But they argued, based on an EPA regulation, that the discharge was a silvicultural nonpoint source, and therefore outside the jurisdiction of the CWA. However, the court rejected USFS' arguments. "The insecticides at issue meet the definition of

'pollutant' under the Clean Water Act, and Forest Service aircraft spray these insecticides directly into rivers, which are waters covered by the CWA. Further, an airplane fitted with tanks and mechanical spraying apparatus is a 'discrete conveyance,' the court said, noting that all the elements of the definition of point source pollution are met. The CWA defines a point source as "any discernable, confined and discrete conveyance, including but not limited to . . . floating craft from which pollutants are or may be discharged."

In its arguments, the Department of Justice (DOJ), acting on behalf of USFS, relied partly on an EPA regulation that defines silvicultural point sources, and specifically omits "non-point source silvicultural activities such as . . . pest and fire control." But the court ruled that the USFS "cannot contravene the will of Congress through its reading of administrative regulations." In addition, the court's ruling says, "EPA may not exempt NPDES permit requirements that clearly meet the statutory definition of a point source by 'defining' it as a nonpoint source."

DOJ officials say they are reviewing the ruling and have not yet made a determination on whether to appeal the decision to the entire 9th Circuit or the Supreme Court. The aerial application of pesticides is already receiving some attention in other federal courts, and on Capitol Hill. Federal appeals courts have already ruled that mosquito spraying in wetlands in New York and herbicide use in irrigation districts in Oregon both require Clean Water Act permits.

EPA deputy water chief Ben Grumbles told a House panel last month that the EPA does not believe Clean Water Act permits are needed in some cases for water application of pesticides to fight mosquito-borne illnesses, including the West Nile Virus. Instead, EPA will issue rules or guidance to provide local officials with regulatory certainty about what is required before spraying. At the same hearing, the House subcommittee suggested such rulings create "significant uncertainty" for public health

officials and stormwater system officials. The panel said, "Communities, industries and others do not know if a [CWA] permit is required for using mosquito control measures involving the use of pesticides."

In May 2001, EPA issued a memo to regional administrators declaring that forcing irrigators to obtain permits for the use of herbicides would be a "low enforcement priority," in a move that gave water users temporary relief from federal enforcement, but still left them vulnerable to citizen enforcement suits. However, in an effort to protect irrigation districts from citizen suits, EPA issued a new guidance in March 2002 to regional administrators, arguing that the application of herbicides to irrigation canals does not necessarily fall under the CWA's effluent discharge permit program because 1977 amendments to the law specifically exempted "irrigation return flow" from the law's

jurisdiction. The memo cites a congressional definition of return flow as including "conveyances carrying the surface irrigation return as a result of the controlled application of water by any person to land used primarily for crops."

But this may still leave irrigation districts and other users of aquatic pesticides vulnerable to enforcement cases or citizen suits because the guidance does not apply to point source discharges into irrigation canals that are considered "water[s] of the United States." This means that if an irrigation canal is a "water of the United States," then the district would likely still have to seek a permit. In the Oregon case, *Headwaters, Inc. v. Talent Irrigation District*, for example, the court ruled that the irrigation canal was a water of the United States, so the district's application of herbicides would not be allowed under the EPA guidance. (EPA OECA Memo of 11/8/02).