● RESEARCH

HEALTHY LUNCHES, HEALTHY FARMS, HEALTHY CHILDREN

BY CAROLINE COX

By directing our food dollars toward organic farmers, we are helping to build healthy soils, sustain rural communities, defend the ozone layer, prevent cancer, and protect drinking water. That's a big impact without a big time commitment—we have to go shopping and cook dinner anyway. At the same time we're also protecting our children's health.

–Sandra Steingraber, The Ecology of Pizza

I ate school lunches almost every day during elementary school. Here's what I remember: soggy spinach, strange peas, sauerkraut that I never tasted, and coleslaw that was more dressing than vegetable.

Now school lunches are changing. More and more schools are seeking out their farmer neighbors and purchasing locally-grown food for their cafeterias, much of it organic. Last year the *New York Times* reported that 400 school districts across the country are purchasing locally-grown food.[1] That number increases as parents, teachers, students, and administrators find that serving locally grown, organic food is good for students and good for communities.

Organic agriculture is a success story. Now a 27 billion dollar industry,[2] it has grown from a few pioneering farmers into agribusiness. As it has grown, agricultural and health researchers have begun to answer a fundamental question: Why is organic food good for children? Let's take a look at some of what we've learned.

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Organic Food Keeps Pesticides Out of Children's Bodies

Thanks to some recent research from the University of Washington we know that eating organic food has a direct effect on pesticides in children's bodies. Three scientists studied common pesticide breakdown products in the urine of several dozen preschool children. At the same time, they asked the parents to keep track of what their children ate for two days just prior to collecting urine samples. If at least 75 percent of the servings of juice and produce eaten by a child during those two days was organic, the child was classified as "organic". Other children were placed in a conventional category.[3]

The results of the study are striking. Concentrations of common insecticide breakdown products in the children eating conventional diets were six times higher than the concentrations in children eating organic diets. The results suggested that children with conventional diets were above the U.S. Environmental Protection Agency's risk guidelines, while children with organic diets were below the threshold. The researchers concluded that "consumption of organic produce appears to provide a relatively simple way for parents to reduce their children's exposure to OP [organophosphate] pesticides."[3]

A follow-up study showed that pesticide levels drop quickly when children eat an organic diet. Working in collaboration with the Centers for Disease Control and Prevention, the researchers showed that when children ate an organic diet, common pesticide breakdown products in their urine were undetectable. These compounds remained undetectable until a conventional diet was resumed five days later.[4]

According to the Center for Disease Control and Prevention's national monitoring program, pesticides are in all of us, especially children. The survey identified over a dozen pesticides or pesticide breakdown products that occurred at higher levels in children than in adults.[5] By offering children organic food, we have the opportunity to reduce this burden.

Organic Food Is More Nutritious

Is organically grown food more nutritious for children than conventionally grown food? This is a question with a complicated answer; no simple study provides the information we need. However, food scientists have begun to pinpoint some of the important differences between organic and conventional food. Here are some examples of what we know so far:

- Lycopene is the compound in the carotenoid chemical family that gives tomatoes and catsup their attractive red color. Research shows that eating more

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lycopene protects people from heart disease and certain cancers. A recent study conducted by the U.S. Department of Agriculture found that organic catsup has more lycopenes than conventional catsup. Organic brands had more than double the lycopene in the lowest-lycopene conventional brand.[6]

- Vitamin A is important for vision, bone growth, and the immune system. Carotenoids, particularly the one called beta-carotene, are building blocks for Vitamin A.[7] Organically grown kale has more carotenoids, including beta-carotene, than conventionally-grown kale.[8] Other researchers found similar results when they looked at beta-carotene in carrots.[9]
- Vitamin C is necessary for your body to be able to repair tissues that are damaged. It's essential for maintaining healthy teeth and bones. It's also an antioxidant, a family of chemicals that blocks molecules that are responsible for the aging process.[10] Vitamin C levels are higher in organic oranges,[11] peaches,[12] corn,[13] and celeriac[9] than in these conventionally grown foods.

The National Academy of Sciences's Institute of Medicine recently recommended that schools "improve the nutritional quality of foods and beverages served and sold in schools."[14] Increasing the amount of organically grown food used in school lunches is one important step that schools can take to follow this recommendation.

Organic Food Means Children Grow Up in a Better World

Some of the most important benefits of organic food are much larger than an individual or a family. By buying and eating organic food, we are supporting an agricultural system that creates a more sustainable future for all children.

In 1978 some Swiss agricultural scientists started a research farm comparing organic and conventional agricultural systems. After over two decades, they found some fascinating differences between the agricultural systems they were studying. They estimated that the organic system used between 20 and 56 percent less energy than the conventional system. Soils in the organic system were between 10

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and 60 percent more stable than soils in the conventional system. Soils in the organic system also had more microbial activity, a more diverse collection of soil microbes, more earthworms, and more mycorrhizal fungi, the fungi that help plants take up nutrients.[15] A 21-year experiment at the Rodale Institute comparing organic and conventional corn and soybean production came to similar conclusions: the organic system required less energy, and soils had more organic matter and more nitrogen.[16] Overall, the picture painted by this research is of a sustainable agricultural system that can be productive for years to come.

Other, shorter-term studies comparing organic and conventional farming systems have found similar results. A five-year study from Washington State University looking at apple production found that the organic system had better soil quality than the conventional system. The organic system was also the most energy efficient, with lower inputs of fuel, fertilizer, and pesticides.[17] A four-year study of tomato production from the University of California at Davis found that organic tomato production increased the ability of soil to hold water.[18]

By supporting organic farming now, we get an opportunity that we shouldn't miss. We get the opportunity to give healthy soils and sustainable farming practices to the next generation.

An Invitation

Almost certainly there are farmers in your community who would be delighted to provide locally and organically grown food to the schools in your town. By serving this food, schools will reduce children's exposure to pesticides, provide students with more nutritious food, and help create a sustainable world for the future. If your community's schools would like to take advantage of this growing opportunity contact NCAP. We're working to help this movement grow.

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