

Introduction

Raising a family in today's world is a constant series of challenges. Often both parents work or the children live with a single parent. Many families have to take on second or even third jobs. Kids are faced with so many unhealthy choices for their diets that obesity is becoming an epidemic across the country. And when parents try to serve healthy vegetables, they have concerns about toxins from pesticides and diseases that are spread through modern processing methods.

Many parents would like to plant vegetable gardens in their back yards, but don't have the time to do all the work associated with traditional ones, nor do they have the knowledge and expertise on what to grow or how to manage them successfully. Often they have a big house with a tiny yard and don't have room or they live in an older neighborhood with a large back yard, with lots of trees and only a limited area with adequate sunlight.

The good news is that there is a new approach to home gardening that is both organic and easy. It combines ancient techniques of intensive, terrace gardening to conserve space and maximize harvest, with the latest research on soils, organic fertilizers, and safe methods of insect and disease control. By planning properly, families can now have an organic vegetable garden in their back yard that produces 80% of the food in 10% of the space with no weeding, digging or tilling.


This book will take you through the steps of how you and your family can plan, install and manage your own organic garden. Because the garden space is much smaller, the workload is almost non-existent. The work you do in your back yard garden will be planting seeds once a season, and watering, usually twice a week. This becomes the perfect family project. Your children won't dread visiting the garden and helping out. Instead they'll see it as a fun activity where everyone is learning about different vegetables and how they taste. Even the busiest parents will have time to keep up with their back yard garden.

I've found that when children are involved in planning their garden and planting seeds, they take a personal interest from the very start and often want to check back each day.

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They're eager to try the vegetables that result, leading to a lifelong interest in healthy eating and how things grow in nature. Finally, these gardens are a way to build wonderful memories with your children.

Gardening lasts a lifetime. When I was about five years old, I recall sitting on the back porch with my grandfather and shelling peas. They tasted so good, only half of them ended up in the bowl! When he moved to Florida he continued growing vegetables at home. When he passed away I inherited many of his tools. I remember him every time I use his shovel. Now I have clients with gardens whose children can be found munching in the back yard instead of eating cookies and candy. Don.



Kids' Projects

A major focus of this book on families, since home gardening is a project where everyone can participate. In most chapters I'll have "Kid's in the Garden" tips and tricks for children of all ages.

First, we'll do a quick review of the problems today's families face as they try to provide healthy food for their children...

Chapter 1

The Quest for Healthy Food

Toxins in Foods

Prior to the 1940's, farming was done on a small scale using mostly organic materials. As farms began to consolidate and become larger and larger, small-scale solutions were no longer practical. Instead of tending a diverse group of crops by hand, farmers needed ways to deal with pest problems on a wider scale, especially when working with huge expanses of single crops like corn and wheat. World War II research allowed for the development of all sorts of pesticide and herbicide compounds that ended up being used across the country.

Of course we now know that many of these pesticides stayed within the food itself as well as building up in the environment.

Pesticide Residues in Birds

Chinese scientists have discovered organochlorine residue in sea birds' droppings on the King George Island of Antarctica. Wang Ziqing and Lu Bing, two scientists from the Second Institute of Oceanology under the National Bureau of Oceanography (NBO), released their findings on Friday. Their findings are believed to be one proof that pollution is spreading into Antarctica, supposedly the last pollution-free region on the earth.

The two scientists had collected more than 200 samples of droppings of four species of sea birds and seals in the King George Island where the Great Wall station, Chinese headquarters in Antarctica, is located. According [to] an examination by laboratories in China and Germany, the samples were found to have a high level of organochlorines. Organochlorines have been forbidden in many countries since the 1980s but the impact on the environment is still going on due to residue in the ocean and atmosphere.

Pesticide Residue Found in Bird Droppings on Antarctic Island (Xinhua News Agency July 11, 2003)


Other studies are finding these chemicals in our bodies. Children are particularly at risk. Since large farms can't be weeded by hand, this increases demand for herbicides as well.

Pesticide Residues Found in People

Some 2,500 people were tested in the largest survey ever to see if the pesticides and other chemicals polluting our environment are also polluting our bodies. Levels of 116 chemicals found in food, soil, water, air, or dust were measured to see if they were also in people's bodies (for 89 of them, this was the first survey). This huge undertaking shows the staggering amount of chemicals now in our bodies. It also confirms the results of previous smaller studies: children are at greater risk for higher exposure than are adults. Organophosphate pesticides, for instance, were found at about twice the levels in children's bodies, compared to adults (and remember, even at the same levels children would more likely be harmed).

Also of note, DDT continues to be detected in people in the U.S., even though its use was banned in 1973. The adverse effects of DDT are well-documented. It is particularly devastating to children. In this study, DDT was found in today's children – born long after the ban! The CDC states, "Food is the primary pathway of DDT exposure for the general population." Continued exposure "may be from persisting DDT/DDE in the environment or DDT residues in food." Also, food imported from other countries may still be grown with DDT. Food is the primary pathway for many of the chemicals in the CDC report.

Second National Report on Human Exposure to Environmental Chemicals. Work was done at the CDC's Environmental Health Laboratory.




Name that pesticide. Take your older kids on a field trip to the garden center and bring a pencil and paper. Stop by the gardening chemicals and see who can write down and pronounce any of the chemical names they find on the labels. Have them stop and notice the odor in the air in that section of the store.

Synthetic Fertilizers

World War II research also yielded synthetic fertilizers. The factories used to develop nitrates for bombs could easily be turned to manufacturing nitrate fertilizers. These compounds tend to leach quickly through the soil and contaminate the water table while leaving salt compounds behind. This has the effect of killing the natural life in the soil, causing problems with the processes of the uptake of nutrition, requiring the use of more and more fertilizer in order to keep up.

We now know that synthetic fertilizers can cause plants to grow in an unnatural manner, resulting in weak stems and leaves, which are more susceptible to insect pests and diseases, furthering the need for pesticides.

Fertilizer Chemicals	
	While they're at the garden center, stop by the fertilizer section. Have your kids take note of the chemicals used in these materials and compare them with the ingredients in composts and organic fertilizers.

Vicious Cycle

All of these chemical inputs follow each other through a vicious cycle of fertilizers, weak plant growth, pesticides, dying soil and the need for ever more fertilizers. These fertilizers also end up running off into our rivers and streams, causing excessive algae growth, depleting oxygen and killing fish and wildlife.

Contaminated Foods

The mechanization of vegetable production has also led to centralized processing. Crops are harvested in huge lots and brought to massive complexes for processing. A small contamination of *E. coli* at an isolated farm is suddenly spread widely throughout the food supply. And this same conglomeration of harvests means that it's almost impossible to trace back to the source of the contamination.

Salmonella Outbreak

The Centers for Disease Control and Prevention (CDC), the U.S. Food and Drug Administration (FDA) and state/local regulatory officials are working together to investigate an ongoing multi-state outbreak of Salmonella serotype *Saintpaul*. The initial epidemiologic investigation was linked to consumption of raw red plum tomatoes, red Roma tomatoes, round red tomatoes, and products containing these raw tomatoes. However, more recent illnesses have broadened the investigation to include other food ingredients as potential sources of the Salmonella (including jalapeño peppers, serrano peppers, and cilantro). Since mid-April, 1251 persons have become infected with Salmonella Saintpaul in 43 U.S. States, the District of Columbia, and Canada, and, 203 people have been hospitalized. The outbreak is ongoing and about 25-40 new cases are reported each day. This is not the first documented outbreak linking Salmonella with tomatoes. Since 1990, 13 large, multi-state foodborne outbreaks and some small local outbreaks have been associated with different varieties of tomatoes. In the past decade, outbreaks involving contaminated tomatoes made up 17 percent of the total produce-related outbreaks. Salmonella has been the pathogen of concern most often associated with outbreaks involving tomatoes. To date, the economic impact to the fresh tomato industry exceeds \$100 million.

Purdue University Food Science July 8, 2008

Food Scares (For Older Children)

Next time there's a food poisoning story, have your kids clip out some articles and keep them on hand. Add to your collection as new stories appear. Talk about the importance of washing vegetables and handling food properly.

Organic Food is Safer

We've known from earlier studies that pesticides and toxic chemicals aren't just in the environment – but get into our developing children's bodies. Some kids have high levels and others quite low. What's different between these kids? Is there anything simple and practical that parents can do to lower their own children's risks? In this study children were divided into two groups: those who ate mostly conventional foods and those who ate mostly organic foods. All urine for 24 hours was collected from each child. Children who

ate conventional diets had mean pesticide concentrations in their urine 9 times higher than the children who ate organic! Their levels indicated that they had exceeded safe exposure levels set by the EPA and were at increased risk to their health. By contrast, those children who ate organic foods were well within the EPA levels deemed to cause negligible risk. Feeding children organic foods is something simple and practical parents can do right now to protect their children and help them build healthy bodies.

Work was done at the Department of Environmental Health, School of Public Health and Community Medicine, University of Washington. Published October 2002.

Childhood Obesity

Another problem brought about by the mechanization of food production was the huge increase in highly processed flours and sugars and the use of inexpensive corn syrup sweeteners. These are now thought to be a main cause of one of the greatest health concerns today, obesity in children. Our kids are more overweight than ever before and with them running off to school in the morning and eating lunch there, the amount of healthy food they consume is declining rapidly.

Overweight children

In 2002, data showed that 15% of children and teens are considered overweight, a tripling since 1980. An additional 15% of kids and teens are considered "at risk" for becoming overweight.

"More than 75% of children ages 6-11 do not eat the minimum of 3 servings of vegetables or 2 servings of fruit daily."

From How to Teach Nutrition to Kids by Connie Liakos Evers, MS, RD.

Obesity and Disease

300,000 deaths each year in the United States are associated with obesity.

Overweight and obesity are associated with heart disease, certain types of cancer, type 2 diabetes, stroke, arthritis, breathing problems, and psychological disorders, such as depression.

From US Surgeon General.

Garden Exercise

Use your garden as an excuse to get your kids some exercise. Instead of having mom or dad use a wheelbarrow, give your kids some buckets and let them carry what's needed, whether it's adding compost to the beds, or taking old plants to the compost pile.

Vegetable Nutrition and Freshness

Many parents are turning to organic food stores and farmers markets to buy vegetables for their families, but organic produce is becoming more and more expensive and driving to the edge of town every Saturday uses up a lot of gas. But the biggest problem with organic produce and farmers markets is freshness. The average vegetable loses 15% of it's nutritional value every day after it is harvested. So if you buy produce from the store and it was picked five days ago, it has half of the nutritional value of something picked today. Even if the farmer at the market harvested his vegetables the day before, it may be three to nine days before you end up using all you bought.

Lettuce Research

Buy some lettuce from the grocery store and place a large leaf in a plastic bag in the fridge. If you have a similar sized leaf from your own garden, place it in another bag. Have your kids check back each day and observe how each degrades over time. Does the grocery store lettuce break down faster than the leaf from your own garden? Why?

Soil Fertility and Nutrient Content

Recent studies show that when the same land is used repeatedly for farming the same crops, the micro-nutrients in the soil become depleted. Replacing nitrogen, phosphorous and potassium alone does nothing for these trace elements.

Food Nutrient Content Declining

The amount of nutrients in our food is steadily declining, according to recent research. A recent survey found some fruits and vegetables we buy today contain far fewer nutrients than they did 50 years ago. This is especially noticeable in foods such as potatoes, tomatoes, bananas and apples. Specifically, the potato has lost 100 per cent of its vitamin A, 57 per cent of its vitamin C and iron, and 28 per cent of its calcium.

The study looked at 25 fruits and vegetables, and found that 80 per cent showed drops in calcium and iron, 75 per cent in vitamin A, 50 per cent lost vitamin C and riboflavin, 30 per cent lost thiamine and 12 per cent lost niacin. Data from the US Department of Agriculture also documents a similar trend in vegetables, from the start to the end of the 20th century. The average mineral content of vegetables such as cabbage, lettuce, tomatoes, and spinach has declined from 400 mg to less than 50 mg.

The decline in nutritional content is likely due to changes in farming methods that tend to focus heavily on a food's appearance and ability to be transported and stored effectively. Rather than focusing on vitamin content, food producers are more concerned with high yields, visually appealing product and disease resistance. How foods are cooked and processed may also play a role in diminishing nutrient content. So, today, the diet may not necessarily provide all the vitamins and minerals you need at optimal levels. This has the potential to negatively affect your health, since a number of common diseases are thought to be related to nutritional deficiencies.

News Canada

Organically grown vegetables seem to fare better, probably because farmers who care enough to use organic methods pay much closer attention to soil fertility and composition.

Heirloom Plants More Complete

Research study shows only heirloom organic breeds nutritionally complete.

One look at a big, red tomato and one can almost taste its' juicy freshness...unless, that tomato was part of a group of 43 fruit and vegetable crops analyzed by Dr. Donald Davis, research associate at the Biochemical Institute at the University of Texas, Austin. For two decades, Davis and two colleagues Melvin Epp, and Hugh Riordan analyzed nutritional data taken from selectively bred high yield conventionally grown produce. In 2005, their study titled "Changes in USDA Food Composition Data for 43 Garden Crops, 1950 to 1999" showed the results.

According to Davis, "We tracked 50 years in U.S. Department of Agriculture food composition data for 13 nutrients in 43 garden crops, vegetables, strawberries and three melons. Low and high yield varieties were grown and analyzed side by side eliminating key uncertainties that apply to historical data. The data was then analyzed. "

...What the researchers found were declines in average concentrations of six nutrients. The results of 20 years showed declines in:

protein	6%	calcium	16%
phosphorus:	9%	iron	15%
riboflavin	38%	vitamin C	20%

Declining Nutritional Value of Produce Due to High Yield Selective Seed Breeding. Written by Vicki Godal

Organic vs. Store-Bought

Visit the grocery store with the kids. Have them compare conventional vegetables with their organically grown counterparts. Compare appearance, size, and cost. Buy one of each and do a blind taste test. Does one taste better than the other? Once your garden is productive, have them do the same taste test again. Which is better, store-bought, organic or fresh-picked?

Food Prices

Another problem facing today's families is the ever-increasing cost of food, with fruits and vegetables leading the way. In 2008 the price of produce is estimated to have climbed at twice the rate of inflation, and organic produce can be 25% to 50% higher than conventionally raised food. Simply growing a few crops at home can have a significant impact on your family's budget.

High Food Prices Hit Poor Families Hardest

The cost of living – measured by the Consumer Price Index – rose during the past 12 months at the fastest pace since 1991. The July 2008 price increases reflected, in part, while rising food prices and may rise quickly, they tend to come back down more slowly. Since most families' incomes are not keeping pace with rising costs for everything from food to gasoline, many are facing hard choices – especially those at the bottom of the income ladder...

Differential Impacts on Families

Although it is instructive to look at averages, a better understanding of how recent price increases are affecting families comes from a look across the income range. The budget shares consumed by food vary widely by income. In reality, recent price increases have little impact on those with upper or upper-middle incomes. Using 2006 Consumer Expenditure Survey data to illustrate, families with incomes in the upper 20 percent of the income distribution spend roughly 7 percent of after-tax income on food... Their food bill would have increased during the past year from about \$10,300 to \$11,000...

In contrast, families in the lowest 20 percent of the income ladder spend nearly one-third of their after-tax income on food and about 10 percent on gasoline and motor oil. Their average food expenditures would have grown from about \$3,200 to \$3,400... Increases in food prices are felt acutely by poor families on food stamps, the federal food assistance program. In the 12 months ending in May 2008, the cost of food for USDA's minimum nutritional diet had risen 7.2 percent, but food stamp allocations have not changed since last fall and will not rise again until October 2008... Given the growing challenge of stretching the food dollar, it is not surprising that local food pantries are experiencing increasing numbers of requests for supplemental food.

Rising Energy and Food Prices: Effects on Families.
Cynthia Needles Fletcher, Department of Human Development and Family Studies

Fossil Fuels Used in Food Production

By now you've heard the average vegetable travels 1500 miles to reach your table. The costs to the environment from all this trucking are massive. Whether you're a believer in man as the cause of global warming or not, reducing the amount of travel involved in food production can only be seen as a positive goal. In 1945, 40% of produce was grown in home gardens. A National Gardening Association survey showed 49% of families reported having a home garden in 1975 during the first oil crisis. Now the number is 22%. Even a small increase in home gardening can have a measurable impact on family food costs and fuel consumption.

Food Miles

"Food Miles" refer to the distance that your food has been transported between its source farm and where you buy it. Food miles are one measure of the amount of energy used to transport your food and the consequent pollutants released by that transport. Estimates vary but transport may account for 20% or more of the total energy use associated with the provision of a given food item. As such, Food Miles are a relatively simple statistic that can be used to demonstrate the ecological importance of local foods.

Seventeen percent of this nation's petroleum consumption is dedicated to on-the-farm food production. Add on processing, packaging, refrigeration and transport of edibles and food takes a big bite out of affordable oil supplies and contributes to pollution. Domestic food as basic as lettuce we could grow in front yards most of the year, and green houses in winter, travels up to 3,000 miles from field to table.

<http://www.revivevictorygarden.org/FoodMiles.html>

Long Distance Produce

Visit the grocery store produce section and make a list of fruits and vegetables. Later go online and find out where they're grown and how many miles away that is from your house. Identify which of these can be grown in your area, or even your back yard!