

1 CHAPTER

Introduction

During the 1970s, inflation and unemployment were high. In such lean years, many people grow substantial backyard veggie gardens. I was a young man who did that.

Good times returned in the 1980s and continued into the first half of the first decade of the new millennium — fat years. I was there. In easy times people go to restaurants and take summer vacations; not me, I continued gardening.

Now I am 63 years old, still flexible enough to touch my toes (on a good day), still able to put in a hard morning's work, still growing the majority of what we eat in our household, still doing it 12 months a year. These days I feel fortunate to have retired to one of the world's most remote places, Tasmania, a temperate South Pacific island with a climate that is a lot like Oregon's. From here I can enjoy a slight sense of detachment as I watch how the planet is going. But Tasmania is not self-sufficient, so I am not nearly as detached as I wish I could be about the hard times I foresee coming. I have the feeling that I should share some gardening knowledge I've accumulated with those who are probably soon going to need it, which is why I wrote this book.

During the fat years, an unfortunate change happened in veggie gardening. Books and magazine articles promoting traditional homestead and backyard methods — growing well-separated plants in rows far enough apart that you could walk between them — disappeared. Row gardening was universally denounced as a waste of space, inefficient with water, and low-producing. Densely packed, deeply dug, super-fertile, massively irrigated,

raised-bed systems became fashionable. As I write this book in 2005, intensive gardening still reigns.

When I started suburban backyard food gardening, John Jeavons was just starting to write about intensive gardening, and that was the method I used. Five years later I became a back-to-the-lander and continued to garden intensively even though I had a five-acre (two-hectare) homestead and could have spread my plots out as widely as I wished. In 1979 I created Territorial Seed Company, a homestead-based mail-order vegetable-garden seed business, and by 1984 I had written three gardening books recommending intensive methods.

During the 1980s, when intensive had become standard practice, several things came together to teach me it was not the best way. Because I was running a seed company, I had to do variety trials. What are variety trials, you ask? Well, an honest seed business does not sell just any old variety of seed that has been recommended by Someone Else. You decide for yourself what to sell after testing numerous varieties. Trials require that you grow plants far enough apart that each can develop to its full potential. One thing I noticed from doing this was that my trial plots didn't need nearly as much irrigation as my intensive veggie garden. Another was that these well-separated plants got much larger; they tasted better than crowded vegetables did when they weren't harvested promptly; and many vegetable species grown that way yielded more in relation to the space occupied, not less as I had read in books by intensivist gurus.

I sold the seed company in 1986. With lots of free time and several acres of gardenable land to play with, I researched the nearly lost art of vegetable gardening without irrigating at all, which is mainly done by putting plants extremely far apart. Having mastered this, I wrote *Waterwise Vegetables*, a small book about dry gardening in Cascadia (a bioregion encompassing those parts of Oregon and Washington west of the Cascade Mountains, the redwood country of northern California, and the islands and Lower Mainland of British Columbia). It is out of print now.

These days I no longer raise my vegetables using the extreme intensive method that is still advocated by Everybody Else. And I irrigate much less than most people. If I did not have irrigation, I could still grow my garden. I believe I've worked out methods that best suit the coming hard times.

The coming hard times

Several flows are inevitably joining and reinforcing each other, becoming a global river of change.

We are soon going to base our civilization on something other than oil ... or else we aren't going to have much of a civilization left. Soon, everything made with oil is going to cost a lot more: gasoline, food, clothing, transportation, heating of houses, etc. And after that, if oil is still the basis for almost everything we do, then everything is going to cost even more.

At the same time as oil is getting scarcer, average people in the countries with older industrial systems are going to have less real purchasing power. This is the inevitable consequence of a global economic system. Attempts to protect English-speaking labor from competition with Chinese or Indian labor will prove futile and self-destructive. Working people will have less to spend, while much of what they have gotten used to buying in these recent fat years is going to cost more.

Many will respond by producing some or much of their own food. But those practicing raised-bed intensive methods will discover that intensive use of land requires large quantities of water, manure/compost, and fertilizer. If they could make a comparison, they would find that highly intensive beds require more of their time and effort than the slightly increased yield justifies.

Water has become scarce in many places. Flow from rural wells is dropping as many new households pump from the same water table. At the same time, watersheds are becoming ever more degraded, lessening the recharge of groundwater. Electricity will go up in price as oil does, so pumping water will also cost more. Folks on municipal water systems will pay more because both purification and pumping are energy dependent. In short, town water may soon cost so much that even if it is available, and even if watering of gardens is allowed, irrigated gardening as it has been done will induce economic pain.

Fortunately, in most temperate climates, vegetables can be grown with little or no irrigation. Our ancestors knew how to do this in the days before water came out of pipes under pressure. In this book I will show you how to do it as well.

Chemical fertilizers, and many organic ones too, are made with petroleum or natural gas, so they are going to become more expensive. If you can only obtain small amounts of ordinary manure or homebrewed compost in their

place, an extensive gardening system will enormously outproduce highly demanding intensive beds. In this book I will show you how to make effective compost simply and without undue effort, and how to wisely choose and use the best manures, avoiding overuse, which is a common gardening mistake. Building up soil excessively not only wastes money and effort, but also lowers the nutritional content of your vegetables.

It's true that there are a few kinds of vegetables, like celery and cauliflower, that require extremely high levels of soil fertility. Rather than try to make super-fertile soil for demanding crops by using manure or compost, I will show you how to concoct an inexpensive organic fertilizer blend made entirely of agricultural waste products and crushed rocks. If this complete organic fertilizer is used to supplement modest amounts of manure and/or compost, the food your garden produces will contain far more (human) nutrition than veggies grown by any other method.

This book is for people who must have a good result. But veggie gardens started with garden-center seedlings and picture-packet seeds often don't have a great result. Seedling raisers and mass-market picture-packet seed businesses are not always ethical. The successful home gardener must start with strong seeds and truly healthy transplants of varieties that are dependable and productive. I was a seedsman. I know the trade. I will tell you who to deal with and why so you'll be a smart buyer and end up with a successful garden. You'll also spend a lot less.

Gardening magazines, garden centers, and seed catalogs all promote the idea that their appealing merchandise is useful and essential — that you need it. Actually, to veggie garden successfully you only need a few hand tools, used properly. I am going to educate you about this as your grandfather should have done. But almost none of us had a grandfather who knew how to grow vegetables, who grew up on a farm, who sharpened shovels and hoes and worked the earth. If you'll allow it, I am going to be the gardening grandfather you never had.

Getting land

To produce a lot of food you have to use a fair bit of land. Not acres, not even a generous half acre, unless you aim for complete family food self-sufficiency, but still a fair bit more than a few postage-stamp beds in a tiny backyard.

People in the United Kingdom experienced hard times from about 1930 to the early 1950s. During World War II, with survival as a nation at stake, they had to do everything possible to produce as much food as could be raised. Every bit of farmland that could be cropped grew essentials like cereals and potatoes; consequently most kinds of vegetables were scarce. So during wartime the country expanded the “allotment,” a British term meaning a community garden plot, into a national institution. Every council (local government) was required to make an allotment available to any resident who requested one. By law, each plot, provided for a token rental, had to be at least 300 square yards or 2,700 square feet (about 250 square meters). Some people would take two plots; one for vegetables and the other for small fruit. People would spend time on their allotment after work. Sunday afternoons became gratifying social events at the gardens. Many of the plots sprouted tiny lockable shacks made of recycled materials in which gardeners kept a few tools and an old chair, too, which they could pull out into the sun and rest in as they chatted with the neighbors and sipped a bottle of warm English beer.

Only a few allotments still exist in the United Kingdom because the economy has been good there since the early 80s. But during hard times, having 2,700 square feet of veggie garden made all the difference between health and sickness, between having enough to eat and low-grade hunger.

Another example comes to mind. The Cubans had especially hard times after the fall of the Soviet Union. Before 1991 they had barely been getting by through raising sugar, exporting it to the communist bloc nations, and importing food and gas. The Cubans responded to the collapse of the Soviet Union by breaking up their huge co-op sugar farms and converting them to individual holdings. City people were freely granted garden blocks at the edges of towns and cities; each block was a third of an acre. Today, half of the produce consumed in Havana is grown in urban gardens. And urban gardens produce 60 percent of the vegetables consumed in all of Cuba. Today in Cuba only animal-based foods are scarce. Neighborhood gardens and community horticultural groups not only produce food for their members, but they also donate produce to schools, clinics, and senior centers and still have enough excess produce to sell a bit in neighborhood markets at low prices. By the beginning of the year 2000, there were over 500 community vegetable stands functioning in Cuba, with prices at 30 to 50 percent of the prices at farmers’

markets. No one is hungry; the people are well nourished despite ongoing economic sanctions from the US government. What is most interesting to me is that all this produce is organically grown. The Cubans are now on the planet's leading edge in developing holistic non-petroleum-based horticulture.

The community garden has not yet caught on in North America. The ones I supported in Eugene, Oregon, during the 80s and early 90s provided plots that were too small for a serious gardener like me to want to bother working. And I was shocked at that time to see how many unclaimed plots there were. A serious gardener could have rented three or four or ten of them and had a half-decent garden, but no one did that. I guess that's how people think in fat years.

Size of your garden

I wish I could tell you how much food could be produced from a particular amount of land, but there are too many factors at play. How fertile is the land? How deep and what type is the soil? How skilled is the gardener? How much water is available, either from rainfall or from irrigation? How will the weather be that season? What sorts of vegetables will be attempted? Will the crops be ideally suited to the climate and soil? What quality of seeds will be used? What is the latitude (which determines the duration and strength of sunshine for the growing season)? How many frost-free days are there? How severe is the winter?

As a rough gauge, take the 2,700-square-foot wartime allotment plot in the United Kingdom. Britain's cool and frequently cloudy summers mean that most vegetables grow more slowly than they usually do in the United States or southern Canada. But on the plus side, the mild English winters allow gardeners in many areas to harvest frost-hardy crops year-round. The wartime British were not expected to make a complete family diet out of 2,700 square feet of vegetables. Their staff of life was bread from the local baker. They ate as much meat, cheese, and fish as they could get. The children still drank milk from the dairy. Probably during the war years vegetables, including potatoes, did not make up more than a third of the family's total caloric intake.

Tasmania, where I live now, enjoys a slightly milder winter climate than is found in the U.K. This permits me to actively grow root crops, coles (i.e., broccoli, cabbage, cauliflower), and salad greens during all the chilly, frosty months when I can't grow beans, tomatoes, and corn. Over half my garden

area produces two crops each year. I use about 2,000 square feet (200 square meters) of actual growing area (not counting paths and surrounds) to supply my kitchen, which feeds a family of two adults (no kids). My garden vegetables make up about half the daily calories we eat year-round. Add in the area used by paths and surrounds and I'm up to nearly the 2,700 square feet of the British allotment.

Presently I can afford (and do conveniently find offered for sale) all the high-quality concentrated organic plant nutrients (fertilizers) my garden can use. If I had to scavenge fertilizer and make compost from all available wastes (possibly including our own humanure), the production of my garden would drop. Drop how much? Maybe by a third if I made good compost; drop by half or more if I made poor compost. (I'll explain making effective compost in Chapter 7.) I could make up for that drop in productivity by using more land — if I had it.

If the earth freezes solid in winter (meaning no winter garden unless it's under plastic or glass), increasing the growing area by half and preserving or (even better) storing produce in a root cellar for winter would do the trick. If irrigation is in short supply or nonexistent in a climate that usually has decent summer rainfall, then increase by half again, to 4,500 square feet (420 square meters), the area needed to produce half the year's calories for two adults. Is it any wonder that the typical small-town building block has, until recently, been a half acre (which is about 21,000 square feet/1,950 square meters)? A lot that size has room for a significant garden in the backyard.

One more thing. If your goal is to produce not half, but nearly all the calories and nutrition needed year-round, and if your family can depend on the ordinary potato as their healthful staff of life, then you can add more land in order to produce sacks and sacks of nutritious spuds or sweet potatoes. If your efforts are helped by irrigation, add at least 500 more square feet (45 square meters) of growing area for each adult in the family. If there is no irrigation and you live in the rainier parts of North America east of the 98th meridian (a north-south line running through Dallas, Texas), add about 750 square feet (70 square meters) per adult. The good thing about potatoes is that working plots of this scale can be done entirely with hand tools. To produce the same amount of nutrition by growing cereal grains would require five to ten times as much land per person. The healthful potato is really the thing for getting

through hard times. (If you don't believe that the potato is a health-producing food, please skip forward to Chapter 9 and read what else I have to say about the common spud.)

The healthful spud

The "Irish" potato actually is a native (South) American crop from what is now Peru and Bolivia. However, to arrive in North America it first had to be carried to Spain in the 1500s. For two centuries the Europeans considered it only an amusing oddity until, in about 1700, a plant grown in a botanical garden in Sicily began forming tubers early enough in the season to be useful in temperate latitudes. Then the potato's amazing productivity caused a massive increase of population throughout northern Europe. These people became the migrants who so rapidly filled North American farms and factories.

Before the English brought potatoes to North America, the native North Americans practiced an agricultural system based on corn, beans, squash, and sunflowers, crops that had probably moved into North America from Mexico about 1,000 years before the arrival of the English. This gardening system required nearly an acre to support an extended family. The English-speaking Americans adopted the Native American crops; combined them with food crops brought from England, which included the potato from South America; brought the sweet potato (probably from the Caribbean); and created a hybrid agricultural system combining the benefits of three continents. ■

Is that enough space?

This still may not be enough space. There's one more thing I haven't yet told you. If the soil where you live does not freeze solid in winter to a depth of at least 18 inches for at least a few continuous months, it is probably not possible to grow a vegetable garden on the same land for more than three to five years before serious troubles arise with diseases and/or soil-dwelling insects. Many people living in mild climates have grown the family garden in the same place for more than a generation and think everything is fine. But these folks have forgotten, or were never told by their predecessors, that some kinds of vegetables that once were easy to produce on that plot now seem impossible to grow. They have also forgotten, or never knew, that the output per area used is considerably lower now than it was during the first few years of gardening there.

Winter's freezing halts the soil's biological process. When the thaw comes, the soil ecology starts up again, but from near zero. From this cold start, useful soil microorganisms and small soil animals have as good a

chance to dominate as do the unwanted ones. The good guys can be helped out with crop rotation and a bit of compost.

I stated a few paragraphs ago that presently my own garden for two is 2,000 square feet (200 square meters) of irrigated, well-fertilized growing beds. Now I will confess in full: I have nearly two such vegetable gardens. A large section of my land is always resting — not being fertilized, not being watered, growing rough grass and clover like a pasture. The grass areas are roughly mowed a few times each summer, and all the cuttings are allowed to lie in place to decompose. The British name for this practice is a *ley*. Lasting three to five years, a *ley* rebuilds the soil's content of organic matter and restores the biological process to a stable, healthy balance. Every four or five years, most of my vegetable beds are put to rest in grass, and the grass beds are turned over and begin to grow vegetables. For the first two years after breaking the sod, veggies on the new ground grow noticeably better than the ones on the old beds were doing. By about the fourth year, the appearance of disease and slower overall growth tells me it is time to rotate again.

Thus the size of my garden has doubled. In my case, from 2,000 square feet of growing beds to over 4,000 square feet (370 square meters). Add paths, a couple of currant bushes, four small fruit trees, some asparagus and perennial herbs around the fringes, and I am using 733 square yards (about 6,500 square feet or 600 square meters) inside a wildlife-proof fence. Why 6,500? Because where I live the fencing comes in rolls of 100 meters (109 yards) and when you wrap 100 meters of fencing around the outside of a square, that is the area you end up enclosing.

Becoming a vegetablearian

You have to *be* a vegetarian or a vegan. It's an absolute thing. There's no halfway about it. Either you eat meat or you don't. Either you eat dairy and eggs or you don't.

Vegetablearianism is not like that. First of all, the word itself will not be found in any dictionary because I made it up. When I'd lecture, someone would always ask me if I was a vegetarian. "No," I'd quip, "I'm a vegetablearian. That's a person who mostly eats mostly vegetables most of the time."

Since vegetablearianism is my own word, it is a lot like I am — imperfect. I have known for a lot of years how I should eat. I aspire to eat that way.

If I eat in the manner to which I aspire, I will feel better, be healthier, degenerate less (or more slowly), and maybe live longer. But I have bad habits to overcome, pleasurable and self-destructive habits whose allure I have failed to resist an enormous number of times, although slowly, slowly, I show more character.

When I started gardening I was a young puppy of only 31 years old. I had a strong intention then — one that hasn't changed since. My aim was to have food I produced myself make up the largest possible part of my diet, although I never expected to eat only vegetables.

I started down this road as a typical meat-and-potatoes eater. On our first suburban homestead I had rabbits in cages and chickens in a fenced yard under the fruit trees. I even fattened a friendly young steer named Moocow and put his manure into the compost until Moocow's body, perfectly cut and wrapped, went into the freezer.

I didn't stop eating rabbit because killing them was distasteful. It was not regret over murdering poor old Moocow that put me off beef. When I first started gardening, I'd sit down at the table and eat the meat and potatoes first, then fill in any gaps with a bit of broccoli or salad. A few years later I would fill my belly with broccoli and salads and sliced tomatoes ... and then find I was too full to bother with the meat. I had unintentionally become a vegetablearian. So I sold the sturdy cages I'd built to house the rabbits and was relieved of committing murder wholesale. We did keep a few chickens, but mainly for eggs.

Gardening through my own hard times

In 1978 I was 36 years old, married with no kids, and had a thriving small business, big backyard veggie garden, lots of free time, plenty of money. We decided to drop out of the rat race and homestead, sold almost everything, and bought five acres in a pretty Oregon Coast Range valley. For the first year we adjusted to a new lifestyle — and lived on savings. The next year I wrote and published a gardening book and started a mail-order veggie seed business, both on a shoestring. But the book turned out to be a break-even venture, and Territorial Seed Company didn't start making good profits until mid-1983. By then the savings were long gone.

Between the last half of 1980 and the first half of 1983, what kept me going was the seed company's trials ground. As mentioned earlier, a seed company

will test numerous varieties of, in my case, vegetables, before deciding what seeds to sell, and the trials grounds are where these tests take place. My first trials ground was a half-acre plot that grew a lot more vegetables than we could eat. I also continued the family garden to produce kinds of vegetables that would not be tested in the trials that year.

In 1980 and 1981 I mainly ate the trials. In 1982 the business did better. After the sales season ended in June, I decided the business could spare \$7,000 for my year's salary. But I had lived through 1981 spending only \$4,000 on absolute necessities (and property taxes), so I put \$3,000 of that \$7,000 into my savings account as a reserve against really hard times and did another year on \$4,000. When my once-a-year payday came around again in June 1983, I looked at the books and realized that I had finally created a profitable business. So I began taking \$1,000 a month and doubled that the next year. My hard times were over.

From mid-1980 through mid-1983, most of the food my household ate was vegetables, supplemented by some apples from our old orchard and helped out at breakfast most mornings by blackberries, picked during high summer, stored in a rust-speckled old chest freezer in the woodshed, and blended with frozen bananas, bought as "overripes" at super-bargain prices. Money was so tight that when the germination percentage of the seed company's bean seeds dropped below what was ethical to sell, I'd bring those seeds up to the house and we'd cook them. The food we purchased during those years was the odd bit of brown rice or millet, sometimes a chunk of ordinary cheese, some real Jersey butter or milk from the man down the road, olive oil and vinegar for salad dressings, and in winter, oranges or grapefruits now and then, but only by the full box and only when really cheap. I bought enough gasoline to go to town twice a month, paid the land taxes, purchased the odd bit of clothing at the Salvation Army, bought a chunk of beef about once a month when I'd crave it.

The point of this story is that you too can eat that frugally ... if you need to. I could do it again too, if I needed to. And in terms of health we'd both be better off if we did.

From that time up to the day I write these words I am still, by choice, a vegetablearian. But in these prosperous, easy-living days of the early 21st century, I do not make 80 percent of my diet come from the garden. I can

afford to, and do, buy some food I can't grow. To supplement my own apples we'll buy an occasional mango or ripe pineapple from Queensland and the odd avocado at sale price. I can afford the best olive oil and occasionally some mighty fancy cheese. But for health and for the simple joys of eating delicious food, I still grow about half our kitchen's input based on total calories consumed, and more than half measured by cost. You can do that or more, and you will be far better for it if you do.