

The agroecological approach

**Including an authorized overview of bioprotectants:
active ingredients, brand names, and suppliers**

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Colophon

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Active ingredients, brands and suppliers are mentioned solely to provide specific information. This does not imply any guarantee or warranty of the product by any regulatory authority in any country, nor does it imply any authorization to exclude other products that may also be suitable. This information should not be used as the sole base for making decisions about the best way to manage plant growth and crop protection in agricultural systems.

The text uses the masculine pronoun 'he' when referring to a person, but the feminine pronoun 'she' can be read instead.

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Foreword

Growing sufficient and healthy crops is essential to our survival, but our conventional agricultural system is at an impasse. Previous policymakers have either ignored the fact that our conventional agricultural system contributes significantly to the ecological, social, and health crises of our time, or have attempted to address these crises with stopgap measures. At the same time, society's view of the agricultural sector has undeniably changed. There are now countless initiatives to grow crops without the use of synthetic fertilizers and pesticides. Since the 1980s, the Dutch company 'Grent Consultancy Biologische Middelen' (Grent CBM) has been a driving force behind this change. The company will continue to fulfill this role. After all, there are enormous opportunities for an agricultural sector that produces affordable and safe crops. We are in the midst of an agricultural transformation!

Grent CBM aims to help growers transition to a future-proof agricultural system. Artisanal growers must work in harmony with nature and therefore stand to gain greatly from clean water, healthy soil, and clean air. This will result in an agricultural system featuring healthy crops, healthy soil, and a sustainable business model. To achieve this, we need more growers, not fewer. We can turn the tide of the biodiversity crisis and the climate crisis and ensure that craftsmanship, crop health, and a human-centered approach in agriculture become the norm once again. This is the systemic change that is at the heart of Grent CBM's mission. Now is the time to make a definitive choice!

Our conventional agricultural system painfully demonstrates what goes wrong when growth is prioritized above all else. The consequences for animals, people, nature, and the environment are disastrous. The time is ripe for a fundamental change: we must transform to agroecological agriculture.

There is a reason why you read so much in the agricultural press about the latest synthetic fertilizers and pesticides: the agrochemical industry is driving their promotion. The same reason you'll probably never see an advertisement for organic alternatives is also why research data showing that organic materials influence soil health may never reach the general public: there's little profit to be made from it. But the most important question that occupied my mind during my professional training was this: if the biological approach to our most important problems with diseases, pests, and weeds has fallen into obscurity, which solutions lie hidden in the literature? I made it my life's mission to find out.

At the request of growers, agricultural extension agents, and horticultural suppliers, I began sourcing biological agents from suppliers around the world at a young age. In the 1980s and 1990s, I felt that I could change the perspective of some 3,000 professional growers one by one, while driving about 80,000 kilometers annually. But no matter how many addresses I visited each day, I knew it was merely a drop in the bucket. That is why I started giving lectures.

My goal was to speak at every gathering of growers, agricultural extension agents, and distributors in order to encourage an entire generation to use biological agents for plant growth and crop protection. Sometimes I gave as many as 40 lectures a month. I would drive there to give a breakfast lecture for distributors in the horticultural chain in the morning, a presentation in the afternoon for crop advisors, and a lecture in the evening for a group of growers.

It is no surprise that life on the road became unsustainable. Since I was receiving more requests for lectures than I could accept, I began publishing all my findings in brochures, catalogs, and books. On the road, I could reach hundreds of people, and through lectures, thousands, but this information needed to reach tens of thousands of people. It's hard to believe, but this is already my tenth book. I've paid for all of them out of my own pocket. There are no advertisements in them, and I don't accept corporate sponsorship.

This book is not only a platform where I can share my findings, but a long-awaited opportunity to answer the question: "How can we put biological agents for plant growth and crop protection into practice?"

Introduction

It is a great privilege for any author to contribute to spreading knowledge about a topic that is becoming increasingly important in our society. This book is intended to inform a community of producers, researchers, consultants, teachers, and supporters about the principles and benefits of agroecology. In other words, it is intended for anyone who is committed in any way to creating a safer world.

This book challenges long-standing agricultural practices. It was written to encourage readers to think outside the box and deepen their thinking, as this benefits everyone's mind, body, and soul – and our planet. It contains a beautiful, hopeful message that deserves to be heard.

The fact that you've decided to read this book shows that you are not a passive, complacent person, but rather an intelligent individual who wants to have some control over how healthy plants can be grown in the soil. Congratulations, because the health of the soil and the plants is our greatest asset, and we must be vigilant and protect it well. Many people often don't know how plants are grown and have never bothered to learn more about the side effects of synthetic fertilizers and pesticides. We prefer a quiet life and don't like to question the experts' claims or disrupt the status quo. Many of us are also simply too busy to do the extensive research needed to get all the facts straight and recognize our blind spots.

Few things are as controversial as the way we grow our crops, both in terms of the impact on the planet's well-being and the sensitivities of the people making these choices. Any proposal to change our conventional agricultural system carries a high risk of social unrest. Of course, leaders in the agricultural sector, their advisors, and their defenders in scientific circles will be furious if anyone disturbs the peace by writing about alleged missteps in our conventional agricultural system. This demonstrates how sensitive they are and how vengeful they can become when the conventional knowledge they represent and their authority are called into question.

Resistance to attempts to change conventional agricultural practices stems from the fact that these ideas pose a direct threat to the agrochemical industry. And why? In short: money, ego, power, and control! Improving agricultural production without relying on purchased raw materials would certainly be seen as detrimental to the agrochemical industry. As such, it would be subject to the usual damage-control strategies of threatened corporations, government agencies, and colonized academics: ignore it for as long as possible, then ridicule it, describe it inaccurately, conduct flawed experiments, make incorrect comparisons, and reject the ideas.

The ruthless capitalist agrochemical industry won't be too thrilled about agroecological growers who buy nothing. The fact that Mother Nature provides organic raw materials makes them quite subversive. The agrochemical industry is a multi-billion-dollar business. It tries to spread as much misinformation as possible to cast doubt on alternative approaches. The tobacco industry has done the same.

The concerted efforts of powerful interest groups to ignore, discredit, and conceal the truth about the potential of the agroecological approach have worked so far. Even before being confronted with this information, the establishment reacted defensively: with contempt, sarcastic speculation, and even mockery. But history teaches us that revolutionary ideas have

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always been mocked. What the fearless champions of justice had in common, however, was their tenacity in making their voices heard and their dedication to hard work.

We must not be afraid to speak the truth about the negative aspects of chemical-based agriculture, even if this causes confusion among the public. There comes a time when silence is tantamount to betrayal. Our lives end on the day we remain silent about things that matter. Every time someone questions the culture of scaling up and the use of synthetic fertilizers and pesticides that prevails in our world, a ripple of hope is created. When these ripples come together from a million different places, they create a current that grows even stronger. When we demonstrate how our crops can be grown easily and efficiently using agroecological principles, we set an example that radiates outward – an example that inspires others with its authenticity and helps set the world on the right path.

The way we grow crops is based on so many falsehoods that it is almost impossible to distinguish between truth and falsehood. The agrochemical industry has no intention whatsoever of clarifying this situation or helping people realize that what they accept as truth is in fact based on falsehoods. Their tried and tested strategy is to undermine science and rely on herd instinct. Time and again, we are told that we must return to the herd.

The status quo is an ugly thing. But information that challenges the status quo will always be controversial. As useful as it may be to dismantle and challenge our dominant agricultural system, we must also think constructively. The challenges we face are complex and therefore require more than a simple solution. We must offer attractive alternatives so that we don't destroy systems, but improve them. And shouldn't that be our goal?

It has never been easier to share and find information, but it has also never been more difficult. The vast array of digital communication tools and online forums offers unprecedented opportunities to gather information. However, the abundance of information often undermines our best efforts to extract useful information from the World Wide Web. We've all asked Google to find a specific piece of information and ended up in a maze without ever finding what we were looking for. These days, anyone can publish content online, but when we're gathering data for our agricultural management strategies, we need relevant answers first.

Relevance is essential for providing information in a world where the quality of content is increasingly overshadowed by quantity. Relevant information is not provided by systems, but by the people who enter content into those systems. In today's unstable economy, having the right information is crucial. Now that the world is more connected than ever, reliable networks are more important than ever for bypassing the unqualified leads that prevent us from achieving an optimal level of expertise.

The spread of fabricated facts and ignored truths poses a threat to our society. We have been living with fake news for years. This inevitably leads to an overwhelming sense of confusion and uncertainty. The claims made by proponents of conventional agriculture follow one another in rapid succession, with a high degree of persuasiveness and without nuance, which undoubtedly appeals to many people. The agrochemical industry will sow confusion until our common sense is completely clouded by decision fatigue. We can only hope that this unethical and selfish behavior will come to an end soon.

New ideas, especially those that challenge established orthodoxy, follow a similar trajectory. First, orthodoxy dismisses the new idea as nonsense. Next, the orthodoxy tries to downplay the

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growing appeal of the new idea. Finally, when the new idea proves unstoppable, orthodoxy attempts to claim the idea as its own. This is precisely the path that regenerative agriculture has followed. It is therefore almost inevitable that any description of an agroecological system will immediately be ridiculed. The information in this book will demonstrate that this is based on myths.

The term ‘ecological’ should be understood here in the broadest sense of the word. The standards applied go beyond ‘no pesticides’ and ‘no synthetic fertilizers.’ Other important criteria include recycling, energy conservation, environmental preservation, and self-sufficiency. Although the term ‘organic’ is used more frequently, it primarily refers to the effects on consumer health, causing the overall ecological vision to fade into the background.

Western society is on the cusp of an economy in which our scarce natural resources are used more wisely. An economy in which we ensure that the fruits of our collective efforts are distributed more equitably across the world. The question, however, is whether we can bring about this transformation ourselves (according to plan) or whether we must wait until it overtakes us (through disaster). There are possible solutions, but pursuing them requires individual and political courage. Growers can set a good example by investing in small-scale growing methods that do not require chemical agents. This will accelerate the transformation to a sustainable economy.

Other beings do not celebrate their ingenuity as often as we do, but they don’t need to. Instead, they express their innate wisdom. We, too, possess this innate wisdom. In this context, it is helpful to emphasize the difference between intelligence and wisdom. Intelligence is the ability to solve problems through inventiveness and innovation. We have that in abundance. Wisdom is the ability to apply experience, awareness of context, and knowledge of consequences in practice. In this regard, we seem to face more challenges.

A ROADMAP

This book consists of four parts: 1) Agricultural systems; 2) Plant growth; 3) Crop protection; and 4) Agricultural transformation. The text addresses each of these topics to better illustrate the challenges facing agriculture, science, and the health of society as a whole. To understand this, the text repeatedly returns to the controversies, so that we can make progress in restoring the health of our soils, our crops, our own health, and the health of the planet.

Part I, ‘Agricultural systems’, explains that large-scale industrial agriculture has failed to live up to its promises, whereas small-scale, ecologically oriented agriculture is capable of providing the world’s population with sufficient and healthy food. Part I also explains why ‘agroecological’ is preferred over ‘organic’.

How to maintain as much green leaf mass as possible throughout the year to optimize plant growth is explained in Part II, ‘Plant growth’. The way we treat our crops essentially determines how much of the one-way flow of solar energy is captured and utilized. To get more energy into a system for healthy plant growth, we must therefore maximize photosynthetic conversion.

Part III, ‘Crop protection’, demonstrates that crop protection measures often do not provide sustainable solutions to diseases, pests, and weeds, because the measures chosen are curative rather than preventive in nature.

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A step-by-step plan for implementing changes in our agricultural systems can be found in Part IV, 'Agricultural transformation'. The pluralistic ignorance that seems to dominate our patterns of production and consumption – along the lines of “If no one else is doing anything about it, why should I?” – must be addressed from the bottom up.

PLANNING AHEAD

It is clear that our track record in long-term planning for the well-being of our planet leaves much to be desired. But anyone with genuine interest in how crops are grown can see that our conventional wasteful agricultural system cannot continue and that we must implement radical changes to enable more people to transform to a more sustainable agricultural system. If you truly want to make a difference by growing decent crops on your own small but significant part of the world, you'll find almost everything you need to know on the following pages.

PART I

AGRICULTURAL SYSTEMS

“People are fed by the food industry, which pays no attention to health, and are treated by the health industry, which pays no attention to food.”

- Wendell Berry: The Pleasure of Eating (1990)

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Chapter one. Scale of agricultural practices

In large-scale agricultural practices, commodity crops of a single variety are grown on vast, prairie-like fields, using synthetic pesticides and fertilizers, at the expense of our health and the environment. Large-scale agriculture uses vast tracts of land to produce small amounts of food per acre. The more land agriculture takes up, the less is available for forests, wetlands, and wild grasslands, and the greater the loss of wildlife and the faster they go extinct.

It is a myth that large-scale agriculture is always more efficient than growing crops on a smaller scale. Growers of commodity crops cannot quickly adapt their production to changing market conditions. What's more, their fields lie fallow for most of the year because they are too large to maximize the investment in their land. Except for a few weeks in spring and fall, their expensive machinery sits idle most of the time and loses value. You can be just as profitable on a smaller plot of land as on a slightly larger one with higher overhead costs.

Small-scale growers often follow organic guidelines, which require crops to be grown in healthy soils that store carbon, retain water, provide habitat for wildlife, and produce nutritious food. Research also shows that organically grown fruits and vegetables are distinguished primarily by the absence of pesticide residues and lower nitrate levels. However, organic does not necessarily mean that a food is healthier, especially if the ingredients have been processed. Junk food remains junk food, even if it is organically produced.

Small-scale growers also tend to grow a wider variety of crops on average and use a broader range of techniques than those in large-scale agriculture. The land grabbers who displace them often focus on crops whose raw materials can be traded between different markets. Soybeans and corn, for example, can be used to produce food, animal feed, and biofuels.

High-tech, large-scale agriculture is a major cause of ecological disasters, poverty, and injustice. It is also unnecessary, because the world actually already produces enough to feed 15 billion people. This is nearly twice as much as we really need and at least 40 percent more than we should ever need. The argument that we need more food is therefore fundamentally flawed.

Currently, an estimated three billion tons of grain (mainly wheat, rice, and corn) are produced worldwide each year. One ton of grain provides enough energy to feed three people for a year. Three billion tons is therefore enough for the current world population of more than eight billion people. And this is despite the fact that grain accounts for only half of our nutritional calories.

The future availability of sufficient food calories for humanity is actually a simple calculation: take the 9.5 billion tons of primary crop production reported on the global market, subtract the billions of tons fed to livestock and the amount of grains and oils diverted to biofuels, divide the remaining amount by 8.1 billion people, and see if there are enough calories per person to eat, taking into account the distributional effects of high prices.

LARGE-SCALE AGRICULTURE

The fact that less than two percent of the world's population produces the staple food for the rest should set off alarm bells. Unfortunately, large-scale agriculture relies on chemical and industrial methods that deplete the soil, pollute water and air, and make us sick. Agriculture is

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also highly resource-intensive: it is the largest consumer of fossil fuels compared to all other sectors of the economy.

Today's agriculture is no longer the small family farm of yesteryear that is etched in our memory, but a massive industry focused on growing crops as efficiently as possible to maximize profits, rather than maximize health. Modern agriculture employs few people, and tasks that used to be performed by a single person walking through the fields have been eliminated because they are inefficient. Thanks to mechanization and large fields, a large farm to be run with a minimum workforce.

In industrialized countries, we are accustomed to monocultures grown in huge blocks covering tens or hundreds of hectares. To keep them 'healthy', the crops are usually treated with a deluge of pesticides and are frequently fertilized. The end result is impressive: bright green fields stretching to the horizon with hardly any weeds or pests. Unfortunately, this agricultural system also has many drawbacks. The conversion of more and more natural habitat into crop land is the main cause of global biodiversity loss; in modern agriculture, almost nothing can survive except the crop itself. Large blocks of crop land are also highly susceptible to soil erosion, especially after tillage. The sediment this creates causes ecological damage to waterways and increases the risk of flooding.

Large agricultural operations around the world are increasingly relying on identical techniques, the same machinery, the same pesticides, and the same varieties of key crops. This genetic narrowing can make crops more susceptible to diseases, pests, and weeds. Because the same herbicides are used to treat the same crops, the same herbicide-resistant superweeds are popping up all over the world, threatening to overwhelm growers in their efforts to control them. The convergence of identical crops and identical cultivation techniques renders the natural resilience of plants meaningless. When growers purchase a package of seeds and pesticides from the agrochemical industry, they contribute to the global standardization that increases every year.

Mass production in agriculture takes the form of large-scale farms that specialize in a few crops. However, chronic overproduction leads to wild price fluctuations, despite a huge subsidy system designed to counteract the problem. Instead of motivating farmers to diversify their products and seek new markets, they are trapped in a volume-driven trap: producing more of the same, causing prices to fall further and increasing dependence on chemicals.

Large-scale agriculture is also a major source of environmental pollution. Fertilizers contaminate field margins, causing sorrel, thistles, and nettles – wild plants that thrive in highly fertile soil – to take over at the expense of the more vulnerable plants that would otherwise grow at the edges of fields. Fertilizers also pollute groundwater and leak into our silted-up streams, rivers, and lakes, where they cause algal blooms that suffocate and poison aquatic life.

Arable farming

Arable farmers nowadays have to become technologists, because they are completely dependent on heavy machinery for their livelihood. Family farms are quickly giving up, because the logic of our technological utopia and the 'get big or get out' directive have driven most of them into bankruptcy. The techniques of large-scale agriculture based on physics and chemistry seem to have gained the upper hand over agroecological techniques.

The gigantic machines of modern agriculture have permanently altered the landscape. Automation, GPS tracking systems, precision farming, permanent tramlines, and the broad

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wingspan of spray rigs have led to trees being viewed as obstacles. In reality, modern agriculture has simplified plant cultivation to perfection. As a result, we no longer realize how far we have drifted from the natural landscapes of our youth.

People grow crops in vast, uniform fields that are nowhere to be found in nature. Even most organic crops are grown on large, undiversified farms that bear no resemblance to the complexity of nature. Our dominant agricultural methods are fundamentally dysfunctional. So, what should we do? First, we need to learn to understand how our land is actually supposed to function. Next, we need to develop a creative form of agriculture that allows us to grow our crops by working with the land rather than fighting against it.

An arable farmer can sow acres of corn in just a few hours while sitting comfortably in the cab of a GPS-guided tractor. Large-scale agriculture dominates the countryside. Since the 1990s, the size of arable farms has doubled, and this trend is likely to continue. In addition to the impact on rural communities, there are many problems with oversized farms in the landscape. Many mega-farms are unattractive places lacking windbreaks, trees, and habitats for wildlife.

Vested interests stand in the way of saving rural areas. Often backed by multinational agrochemical companies whose lobbying can be highly influential, large-scale agricultural enterprises in particular are thriving. Agriculture, the food industry, and medical infrastructure together make up a large part of our global economy, and it is not in their interest to promote far-reaching changes in land use.

As if all this were not enough, the modern system of mechanized agriculture provides few job opportunities, causing rural communities to wither away. While farm owners possess a high level of expertise, workers are often poorly trained or untrained and perform simple, repetitive tasks. A farmer with both feet in touch with the earth learns more about the soil, the plants, and the general state of affairs than he could ever observe from the seat of his tractor. So, it's time to step out of the air-conditioned tractor cab and reconnect with the earth.

SMALL-SCALE AGRICULTURE

Given that 60 to 70 percent of all food on earth is produced on farms smaller than two hectares, we already know that small-scale agriculture can feed the world. Our 80-year experiment with large-scale agriculture has been a failure. The promised breakthroughs are always just ten years away, yet they vanish as quickly as we pursue them.

Concepts such as data- and robot-driven 'farming without farmers' and food grown in energy-intensive, highly mechanized bioreactors excite ecomodernists and some policymakers, but send shivers down the spines of those who value seed and food sovereignty and view farmers as bearers of knowledge who work in harmony with nature. True innovation comes from small-scale farmers, who have developed systems that work within their own local conditions.

Widespread abuse of intellectual property rights (for example, through patents, the deregulation of plant breeder's rights, and intimidation of breeders) is commonplace and means that powerful agro-industrial companies seek to claim a share of the profits from products to which they have made no contribution. Farmers are also wary of losing their autonomy and do not want to be tied to subscription-based digitalization models, which require them to make high and repeated payments for access to data. They want technology that offers benefits for their individual, unique businesses.

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Globally, 92 percent of all growers are small-scale, but they occupy only 25 percent of the agricultural land, and their share is declining. Because they are generally more productive, higher productivity means less deforestation and more conservation of natural habitats.

Small-scale farms produce sufficient food all over the world. Where this is not the case, issues such as access to land and political problems often pose the biggest obstacles. We therefore need a bold new wave of land redistribution for various reasons, including combating climate change and ensuring food sovereignty, as well as restoring independence, self-reliance, and self-determination.

Small-scale agriculture has the unique ability to involve more people in the process. With more eyes and hands per acre, we can be more present and pay attention to the countless biological, ecological, and social details that are so easily overlooked as scale increases. We need more people on the land who actively observe, manage, and care for it. You can't send a machine to do the same thing. You need people who truly care about the land. Small-scale farms are the breeding grounds for so many good ideas and techniques that can be adopted by farms of any size. And well-managed small farms are often more productive per acre than their large counterparts, because growing crops requires careful observation to be done well.

Although not all small-scale farms are certified organic, they generally follow agroecological principles. Most of them prefer not to have unnecessary interference and consider their cultivation methods to be sustainable, even without supervision. Their practices are focused on improving the soil and creating healthy ecosystems.

Small-scale agriculture is not only beautiful, but can also be profitable, highly nutritious, and extremely powerful. Arable farms play an essential role in broader food systems, because we cannot do without staple foods such as grains, starchy tubers, protein-rich pulses, and oilseeds. But to secure our food supply in the future, we also need to rethink what we mean by the size of farms and challenge the culturally ingrained notion that 'bigger is better'.

Small-scale agriculture holds real power, on a scale that a community like hers can embrace. Examples of 'small' agricultural businesses clearly demonstrate the skill, ingenuity, creativity, and attention to quality and detail that naturally emerge when hands, eyes, and hearts are fully focused and present.

The point is that you don't need a large area of land to be productive or to earn a decent, sustainable income. Small-scale farms choose to grow intensively on a modest plot of land, rather than spreading their efforts across vast tracts of land. All over the world, from community gardens to rural farms, growers are proving that there is more than one way to grow successfully on a small scale, and that this can be done almost anywhere where good soil, water, and people are available.

Creative marketing strategies enable growers to position themselves as 'price makers' rather than 'price takers': they sell their products at a price they set themselves, rather than accepting the price the market offers them. They carve out a niche by growing small quantities of specialty products that command a good price, especially when larger growers are not focusing on them. In addition, they can improve cash flow by offering customers the option to purchase an entire harvest season and pay upfront for an affordable mix of fresh vegetables, flowers, or fruit –

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harvested especially for them and with a background story that connects them to the business. In other words, they embrace the philosophy of community-supported agriculture (CSA).

Around the world CSAs consist of a mix of established farms and a number of newcomers. Some of them continue to operate quietly and are well-established within their own communities, but are little known beyond them. Others are well-known and definitely worth a visit, as they are constantly innovating their methods and serve as a good model for other CSAs seeking to improve small-scale cultivation and ‘farm-to-table’ delivery to the local community.

Small-scale businesses also contribute to a sense of community, because it is much easier to identify with small local initiatives – such as transforming neglected plots of land into productive fields – than with large-scale projects taking place far from home. A vegetable farm of about 5 acres can employ around 25 people and produce more than 25 tons of fresh vegetables per year, providing meaningful work for dozens of marginalized people.

More and more small-scale growers around the world are inspiring people who have never sown a seed to give it a try. They motivate growers with bigger ambitions to produce for their own communities, show arable farmers that small-scaling growing is a viable option, and encourage people already growing on a small scale to continue their wonderful work.

Small-scale gardening

Small, intensively cultivated plots close to home – such as home, school, community, rooftop, and guerrilla gardens, as well as allotments and food forests – can be surprisingly productive. A wide variety of crops (primarily fruits, nuts, and leafy vegetables) can be grown in a small area. This offers enormous benefits. Multiple harvests per year are possible, and there are far fewer pests because they have to work harder to find their host plants, and even if they succeed, they are more likely to be attacked by one of the countless natural enemies that thrive in small gardens. A food forest mimics an ecosystem in which trees, shrubs, vegetables, herbs, and grasses grow together, with each plant occupying a different ecological niche, thereby creating space for many more plants.

Fortunately, most small-scale gardeners do not need to be certified for the food they grow for their own consumption. Many of them adhere to stricter organic standards than those set by IFOAM. What they actually *do* in their gardens reflects what is important to them – not what IFOAM or any other certification body considers important. The only question is how ‘green’ your gardening practices are!

With products bought in stores, it’s not always clear whether synthetic fertilizers and pesticides have been used. If you follow organic principles, it’s clear that your own fruits and vegetables are safer. Eating food from your own garden is also by far the most environmentally friendly option: no unnecessary packaging, no transportation miles, no encouragement of monoculture.

These remarkable, man-made agricultural systems also provide shelter for far more wildlife than conventional agricultural systems. We can create habitats in our gardens and connect them to create corridors from one habitat to another. Not only in our own gardens, but also in our parks, public spaces, schools, and hospitals. There is also a compelling reason why everyone should consider taking up gardening: it makes us healthier. This may simply be because it helps people relax. It may also have to do with the regular, gentle physical activity that gardening entails, or to the health-promoting properties of the food that is harvested.

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Promoting and supporting small-scale gardening increases access to fresh food and contributes to self-sufficiency. Synthetic fertilizers and pesticides are absolutely unnecessary in your own garden, and there are excellent alternatives to peat-based potting soil. Of course, promoting small-scale gardening alone won't solve all the world's problems, but it is a step in the right direction – a step towards appreciating the origins of food and growing sufficient healthy food for local consumption in a way that can also sustain a wide diversity of life.

Imagine a completely different world in which most people have access to a piece of land and grow their own food, so that our homes are surrounded by a network of vibrant, productive and socially engaged gardens. We could then have a truly sustainable food production system in which nature thrives and people have access to abundant and nutritious food.

CHOICE OF AGRICULTURAL SYSTEM

It is now clear that choosing the most suitable agricultural system affects both the quantity and quality of the harvested crops. This topic is explored in greater depth in the next chapter, 'Why agroecological?'