Introduction: A Few Words About My Background

Drawing on principles from agroecology, permaculture, and entrepreneurship, I champion a modern form of nonmechanized farming, carried out on a human scale.

On a human scale means feeding many local families, while respecting the human and natural ecosystems in which we operate.

On a human scale means allowing market gardeners to make a decent living from their work, to run their businesses as they see fit, and to give themselves more time off than conventional farmers.

On a human scale means evolving through the use of technology but especially by relying on people and their skills and knowledge.

From Organic Farms…

I studied agroecology at McGill University's School of Environment in Montréal, where I met my wife and business partner, Maude-Hélène Desroches. At the time, we were both looking to create a new model for farming, one that would have a positive environmental impact. After graduation, we spent two years in New Mexico, USA, working on an organic farm and learning to be market gardeners.

Our microfarming aspirations were later fueled by a trip to Cuba where we spent time on *organopónicos*, fascinating urban farms that were established during the American embargo. During that era, after the fall of the USSR, the country developed a biointensive and urban agricultural model to ensure food security for the island's residents.

…to a Family-Run Microfarm

Back in Quebec in 2004, we acquired a small plot of 10 acres in Saint-Armand, in the scenic Eastern Townships. On this land, we experimented with our innovative approach to market gardening, which especially drew from the work of Eliot Coleman, an American market gardener who has been highly influential in the world of organic microfarming.

We built a 2-acre market garden, Les Jardins de la Grelinette, where we were able to test the first iterations of my method, now called the Market Gardener Method. It consists of crop rotation, the near-exclusive use of hand tools, organic growing practices, and shorter marketing channels, with direct sales made through CSA boxes and farmers' markets. At Les Jardins de la Grelinette, Maude-Hélène and I both worked full-time, and hired two farm workers (one full-time and the other part-time) to help with harvests.

Making 2 Acres Profitable

Success came quickly, both in terms of harvests and direct sales. After bringing in $33,000 in our first year, we earned twice that in the following year, and more than $110,000 in our third year of operation.

We were thus able to earn a living as market gardeners from almost the very beginning. Since then, our farm has continued to feed more than 200 families every year, offering roughly 40 types of vegetables, all grown on just 2 acres. Over the years, our harvests expanded and sales continued to increase. Eight years after starting the farm, I presented this farming model in a practical guide called *The Market Gardener* in 2014. The book was an instant success — over 250,000 copies have now been sold, and it has been translated into nine languages.

In 2015, with the support of a generous patron, I founded Ferme des Quatre-Temps in Hemmingford, Québec, with the vision of creating a model for the future of ecological agriculture. On this 160-acre farm, we established a polyculture system in a closed-loop cycle, raising pasture-fed cattle, pigs, and hens, alongside a culinary laboratory. At the heart of the farm, 7.5 acres were

dedicated to a market garden, where we applied the growing methods developed at Les Jardins de la Grelinette. It is here that I teach my apprentices the principles of productive and profitable market gardening.

The project was featured in a TV show called *Les fermiers*, which follows the evolution of Ferme des Quatre-Temps and its apprentices, who later start their own farms in front of the cameras. The show was a hit in Quebec and is now available on TV5 Monde and Apple TV.

In parallel, I worked to expand my methods to reach a broader, global audience. In 2018, we launched the Market Gardener Masterclass, a fully online course now available in over 90 countries. To further support this initiative, I founded the Market Gardener Institute with a clear mission: to educate the next generation of growers by equipping them with the knowledge, skills, and resources needed to become leaders in the organic farming movement.

The Institute has two key objectives: to teach best practices in market gardening techniques and growing methods, and to demonstrate that small-scale farming worldwide can not only be ecological but also productive and profitable. On a global scale, it's the number of farms, not their size, that holds the key to feeding the world.

Inspiring Change

My ambition is to drive meaningful change in society by promoting a way of farming that honors nature, supports communities, and empowers local farmers. I believe in a decentralized farming model, built farm by farm, as the foundation for a truly sustainable and resilient food system.

Since 2020, I have proudly served as an ambassador for the prestigious Rodale Institute, which researches regenerative organic farming practices in the United States and beyond. I am also honored to be the ambassador for Growers and Co., a company that develops tools and apparel for new organic growers.

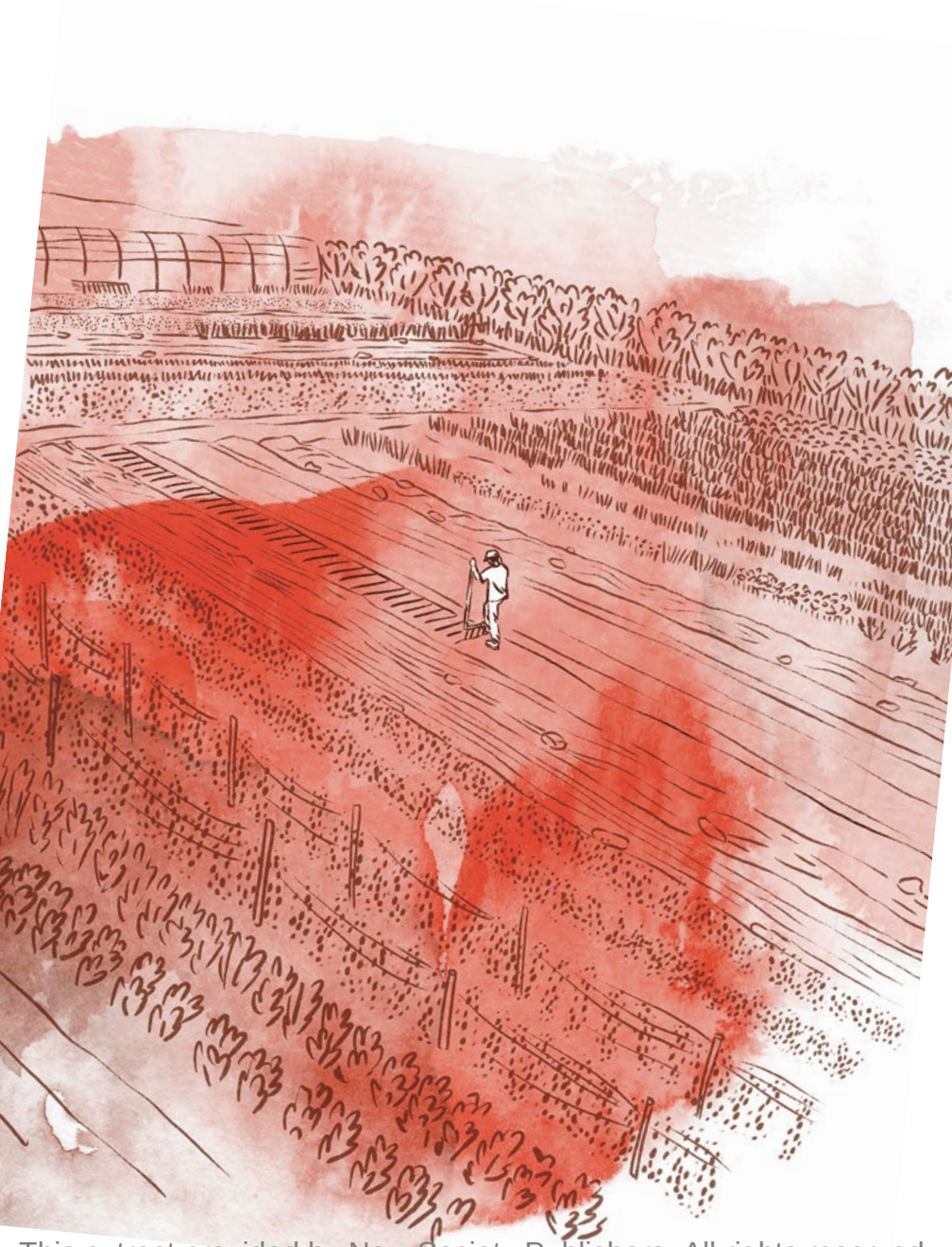
What Is the Market Gardener Method?

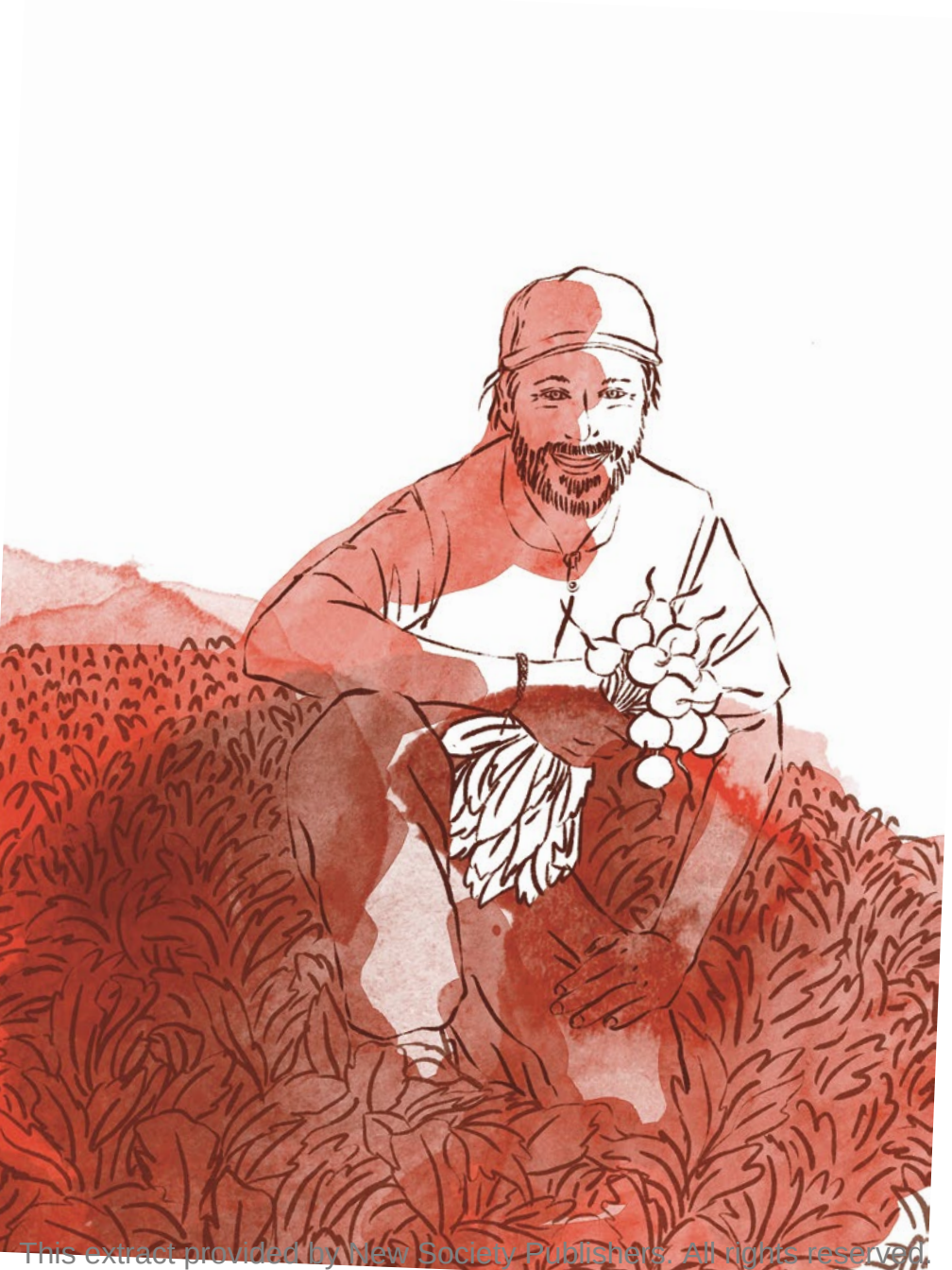
While my approach may seem innovative, it is founded on practices that were first developed by nineteenth-century Parisian gardeners, who fed more than two million people through a network of thousands of market gardens—precursors to our modern-day microfarms—within the city of Paris.

These market gardeners applied remarkable ingenuity, skills, and knowledge to meet the increasing food demands of a city in the midst of urbanization and demographic expansion. They achieved this through organic, nonmechanized agriculture. From the mid-eighteenth century to the twentieth century, many books were written about the innovative practices of these market gardeners, whose technical feats were admired throughout Europe. But with the advent of modern practices, much of this know-how was relegated to the past.

As a result of mechanization, the advent of agronomic science, and improved refrigeration and transport that brought in fresh and inexpensive food grown abroad, farms grew in size, became less diversified, and took on a more technological focus—a trend that continues today.

Fortunately, these inspiring models led to the development of horticultural methods that have endured, and with the same objective: to grow sustainably, by maximizing vegetable yields without degrading soil quality. We now use the term "biointensive" to describe these methods. Unlike extensive agricultural operations, they continue to work on a human scale and offer farmers the opportunity to use little mechanization. Despite what some may believe, this approach is also profitable.





By working on only small plots of land, market gardeners can keep start-up investments to a minimum, compared to the funds needed for a conventional farm. Biointensive farmers also require a smaller workforce, doing the work themselves with the help of just a few employees. They also sell their produce directly to customers, avoiding commissions to intermediaries. These three factors allow market gardeners to start generating profits quickly.

Still, it's important to remember that working the land is never easy. While market gardeners can make a good living with this method, the first seasons are time-consuming and require a significant workload and financial investment. In this profession, nothing comes easy, and every dollar you earn is the fruit of your labor, the result of your organizational skills. That's why I always tell my apprentices to learn how to work smarter, not harder.

From a financial perspective, market gardeners should plan to start with an investment of $50,000 to $150,000, depending on whether certain assets are already available—such as a building that can be converted, access to abundant water, electricity, natural gas, or a vehicle. This amount does not include the cost of purchasing land, which can be amortized over 20 years, if needed. Renting is also an option that can prove very profitable, especially when the farm is located near a city or an affluent municipality, where land is expensive.

Regardless of experience and preparation, the first years of market gardening will be intense. Opening new ground, constructing greenhouses and tunnels, and setting up infrastructure (irrigation, washing and packing stations, nurseries, etc.) all take extra time and effort. However, once this phase is complete, market gardeners who have mastered their craft can do more than just make a living off a few acres—they can earn a very decent living.

This leads to another key principle I teach: your farm should work for you, not the other way around. Profitable and productive farming is possible, but you need to set it up for success.

Using This Guide to Successfully Grow Tomatoes

Sun-drenched, healthy, flavorful tomatoes are, without a doubt, a signature crop for any good market gardener. The truth is, tomatoes are easy to grow, and as proof, many home gardeners grow bountiful and exquisitely tasty tomato crops. These harvests become precious treasures that growers proudly show off and share over meals with friends or family.

Of course, not every harvest is a success, and this is where a little expertise can make all the difference. To grow healthy tomatoes, you must be familiar with the different varieties, know their flavor profiles, and understand their particular horticultural needs. It is also important to manage certain processes to ensure a good harvest: seeding tomatoes and caring for seedlings, organic fertilization and proper irrigation, as well as smart disease and pest management. In short, you need to develop a good grasp of myriad details.

Each of these concepts is described in depth in this practical guide. You'll find the essentials needed to successfully grow your own tomatoes, as well as tips and tricks so that you can harvest exceptional fruits.

While this book was written for all home gardeners looking to grow better tomato crops, some sections are intended for my fellow market gardeners, whether they are experienced or in the process of starting their own microfarm!

Wishing you a resounding success in your gardening adventures.

Tomatoes: The Essentials

Tomatoes belong to the Solanaceae family, which also includes potato and eggplant. This type of plant is referred to as a "tender perennial," and, around the world, there are roughly 2,700 known Solanaceae species. While they are perennial plants in their native tropical climate, they are grown as annuals in more temperate regions. Tomato fruits come in a wide array of colors, shapes, and sizes, from plants that range from under 1 foot (30 cm) to over 6 feet (2 m) high. Both the plant and the fruit are called "tomato."

A Brief History of Tomatoes

All varieties of garden tomatoes belong to the same species, *Solanum lycopersicum*, which is native to western South America. The plant's endemic range extends from the equator to northern Chile. The Aztecs were the first to cultivate and domesticate several varieties, and they are credited with creating cherry tomatoes, or *Solanum lycopersicum cerasiforme*. It is thought that large tomato varieties were likely developed earlier through a selection process dating back to at least 500 BC. The Incas gave the plant its name: *tomalt*.

In the 16th century, when Spanish conquistadors in Mexico discovered this plant, as well as potatoes and squash, they brought it back to the Iberian Peninsula. The tomato then made its way to Italy, which at that time belonged to the Spanish crown where it earned the named *pomodoro*, meaning "golden apple," because the fruit was often yellow. Initially, it was used only as an ornamental plant and shunned by scientists who considered it nonedible. Worse, still, because it belonged to the same family as mandrakes, it was said to have aphrodisiac virtues and was given the name "love apple," rendering it suspect in the eyes of the Church. Though the word *tomate*, French for "tomato," had been used since 1532, it did not enter the Académie française dictionary until 1832.

Even though peasants had been growing and eating tomatoes since the plant first arrived on Spanish soil, it was not classified as an edible fruit until a 1750 publication by Carl Linnaeus. In 1778, the French seed company Vilmorin-Andrieux, which had long considered tomatoes to be a decorative plant, introduced a few varieties into their vegetable catalog. Towards the end of the 18th century, the tomato was brought to northern Europe. Parisian market gardeners started growing it to meet demand, and tomato cultivation spread to Russia, where it was produced in large quantities. Eventually, the tomato returned to the American continent in the early 19th century, thanks to Thomas Jefferson, who had discovered it during a trip to France. The last remaining fears surrounding its edibility abated when Dr. John Bennett published a glowing article about tomatoes in the *New York Times*.

Seed companies played an important role in encouraging home gardeners to grow tomatoes. In the 20th century, they created new varieties to meet standards set by the food industry, which preferred highly productive plants and uniform fruits. In 1971, at the behest of the Heinz company, seed producers developed the first cultivar intended to be machine harvested.

Today, tomatoes are grown in 170 countries, on 11.6 million acres of agricultural land, with 177 million tons of fruit harvested every year. The top three tomato producers and consumers are, in order, China, India, and the United States.

There is a clear difference between tomatoes grown on industrial farms and tomatoes grown in gardens. The industrial sector grows cultivars that favor high yields over flavor, taste, and aroma. These plants have better disease resistance and produce fruit year-round that keeps longer thanks to the RIN (ripening inhibitor) gene, which is responsible for their bland flavor and mealy texture. In comparison, home gardeners grow tomatoes with a rich genetic heritage, a delight for all tomato lovers, whether they are growing or just eating them!

Characteristics of Tomato Varieties

In its natural environment, the tomato plant is a vine that grows indefinitely. When cultivated in temperate climates (with short growing periods) and under market gardening needs (for efficient harvests), the tomato plant is a bush made up of one main stem and secondary branches, called "suckers" because they divert resources at the expense of the main stem and its flower clusters; this is known as sympodial growth. Once three leaf stems have developed, buds appear in the leaf axil, where the leaf stem meets the main stem, and then grow into suckers. The plants also have an alternate leaf arrangement, which means that leaves grow on alternating sides of the stem. Because the flowers are hermaphroditic, carrying both female and male organs, they can self-pollinate. In general, seeds harvested from tomatoes can be used to grow the same variety again. Hybrid varieties, however, are typically identified by the designation "F1", and their offspring will not be identical; with seeds collected from a hybrid, you never know what kind of tomato plant you'll get!

Tomato roots are dense and thick in the first few inches and can reach a depth of 3.5 feet (1 meter). Although growth tends to be similar across all varieties, some, like cherry tomatoes, are prolific, while others tend to be more frail.

To distinguish between the many tomato varieties, you can examine various criteria related to each plant's morphology, growth habit, and fruit.

Growth Habit

Most cultivated tomatoes are indeterminate varieties, meaning that, like wild tomatoes, they grow as vines with a seemingly indefinite lifespan. Given the right conditions, the plants will grow continuously until their natural decline. These plants therefore need to be trained and pruned. To identify indeterminate seedlings, look for thick stems that become increasingly thin as the plant grows and ages.

In temperate regions, you'll also find determinate varieties. The gene behind this mutation, called "SP" for "self-pruning," first occurred spontaneously in 1914, in Florida. Once determinate plants no longer produce flowers, they stop growing altogether. At this point, the plant stems end with a flower cluster at the very top. Determinate tomatoes are more bushlike, tend to reach maturity early, and produce smaller fruits, ranging from cocktail to medium-sized tomatoes. These varieties do not need to be pruned and trained, which makes them ideal for places like small gardens and balconies or patios, where growing space is limited.

Among the determinate varieties that can easily be grown in containers, you'll find micro dwarf tomatoes, which range in height from about 8 to 20 inches (20–50 cm), at most. They mature early and produce small fruits.

Some varieties are also referred to as "semi-determinate." These plants behave like determinates for the time it takes to set two or three fruit clusters, then they will start to grow again. With semi-determinates, you can therefore extend your tomato harvest.

Fruits

The tomato fruit is made up of flesh and seeds and is classified as a berry. Its appearance may change significantly from one variety to the next, but the most common shape is round, slightly flattened and ribbed. Tomatoes also contain hollow cavities, more or less depending on the variety, and vary in size. Although there is no rigorous system to classify them by size, here is an outline of a few broad categories:

- Less than 0.4 oz. (10 grams): currant tomatoes, which generally are not favored for eating
- From 0.4 oz. to 0.7 oz. (10–20 g): cherry tomatoes, the best-defined category

- From 0.7 oz. to 1.4 oz. (20–40 g): cocktail tomatoes
- From 1.4 oz. to 3.5 oz. (40–100 g): medium-sized tomatoes
- From 3.5 oz. to 10.5 oz. (100–300 g): large-sized tomatoes
- Over 10.5 oz. (300 g): beefsteak tomatoes

Color

You can generally guess a tomato's flavor based, in part, on its color. The skin and flesh both contain antioxidants and pigments. In the flesh, the main pigments are lycopene, beta-carotene, delta-carotene, chlorophyll, phytoene, and phytofluene. Lycopene is the pigment that makes tomatoes turn red. The skin contains a pigment that can either be clear, allowing the color of the flesh to show through, or yellow, which adds a layer of pigment over the color of the flesh. Red is the most common color, found in two thirds of tomato varieties.

Each tomato's acidity depends on combined acidic compounds in the fruit, like caffeic acid and ascorbic acid. It will also vary according to exposure to sun. When tomatoes are grown outdoors, they are naturally more acidic. Sugar content increases as the fruit ripens. Then, towards the end of the season, tomato acidity decreases.

Thanks to chemical compounds like vitamin C (especially found in raw tomatoes), lycopene (especially found in cooked tomatoes), carotenes (highly concentrated in orange varieties), and tomatine (found in green tomatoes), tomatoes contribute to preventing cancer and cardiovascular disease. However, when grown in excessively hot (above 95°F, 35°C) conditions, they lose some of their nutritional value.

Maturity

The term "maturity" refers to the number of days a tomato plant needs to produce mature fruit. The countdown starts the day you transplant tomato seedlings into your garden bed or container, and not from the seeding date.