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Organic Gardening

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- Manage pests in an eco-friendly way

Sue Fisher

Horticulturalist and gardening writer

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Author, Trees & Shrubs For Dummies

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Organic
Gardening
FOR
DUMMIES®

**by Sue Fisher, Ann Whitman, Suzanne DeJohn
and the Editors of the National Gardening
Association**



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About the Authors

Sue Fisher began her horticultural career in 1980, training in commercial horticulture and working in the nursery and garden centre industry. It was her initial training that sowed the seeds for a lifetime passion for organic gardening, with the conviction that putting so many chemicals on plants just could not be healthy!

For much of the first part of her career, Sue was plant buyer for the Frosts group of garden centres and landscape company, and the winner of many top industry awards. But promotion brought with it distance from the plants that she loved, so in 1990 Sue struck out on her own as a garden writer and designer. The BBC spotted Sue's passion for her subject and commissioned her first book within a year, and her features in the press won her the coveted Garden Writers Guild trade press Writer of the Year award. Now her published work spans ten solo books, including the UK adaptation of *Gardening For Dummies* (she has also acted as technical editor for several other titles in the *For Dummies* series); contributions to a number of other books with top gardeners including the late Geoff Hamilton, Alan Titchmarsh and Carol Klein, and a wealth of articles in newspapers and gardening magazines. Sue has broadcast on radio and TV, and lectured to many audiences, from garden clubs and societies to tour groups. Her designs have transformed numerous private gardens, using planting styles from contemporary to cottage. With memories of the birth of her own love of gardening, she also advises schools on garden management and design.

Recently, Sue moved to Devon where she is currently transforming a half-acre plot above the Tamar Valley into a haven for all the family, using a contemporary approach to wildlife and sustainable gardening design.

Suzanne DeJohn describes her fascination with all things botanical as encompassing a curiosity about the natural world and a passion for the science that explains what she sees, all wrapped up in an aesthetic sensibility that inspires her to find beauty in the simplest expressions of nature. 'As gardeners, we must take our cues from nature and follow the principles that govern healthy ecosystems. It's the only way we can create an environment that can sustain us now and for generations to come.'

Suzanne has worn a variety of hats in her twelve years with the National Gardening Association, including work in the education, editorial and IT departments. She coordinated NGA's online question and answer service for six years and has answered literally thousands of gardening questions. Convinced that gardeners are curious and love to learn, she was inspired to create the *Exploring the Garden* series of in-depth, online courses that teach the principles of botany in the context of the garden. Suzanne also does Web- and print-based graphic design work for NGA, takes photos for the websites and creates illustrations to accompany articles.

Suzanne's varied background includes a BS in geology from Tufts; university courses in botany, soils and plant pathology; a stint as a research assistant in plant pathology; and several years as a self-employed artist and graphic designer. She's worked on a landscape crew, as well as on a dairy farm and an organic vegetable farm, and spent several years as a cook at a natural foods store. The common themes running through these seemingly disparate vocations are plants, beauty, nature and healthy food. Suzanne strives for balance in her life by combining time spent outdoors in her gardens with time spent at the computer, communicating what she has learned about plants and gardening.

Ann Whitman earned a Bachelor of Science degree in Plant and Soil Science at the University of Vermont. She also completed a Master of Arts degree in Landscape Design from the Conway School of Landscape Design in Massachusetts. Ann is the author of *Trees and Shrubs For Dummies* (Wiley Publishing, Inc.) as well as *How-To Landscaping Basics* and *Water Gardens: Simple Steps to Adding the Beauty of Water to Your Garden*, both published by Time Life. She also contributes to several gardening magazines and websites. When she's not writing, Ann gardens on fertile river-bottom soil in Vermont where the winters are long and the summers are short, but worth it.

The National Gardening Association (NGA) is committed to sustaining and renewing the fundamental links between people, plants and the earth. Founded in 1972 as 'Gardens for All' to spearhead the community garden movement, today's NGA promotes environmental responsibility, advances multidisciplinary learning and scientific literacy, and creates partnerships that restore and enhance communities.

NGA is best known for its garden-based curricula, educational journals, international initiatives and several youth garden grant programmes. Together, these reach more than 300,000 children nationwide each year. NGA's websites, one for home gardeners and another for those who garden with kids, build community and offer a wealth of custom content.

To find out more about the National Gardening Association, write to 1100 Dorset St., South Burlington, VT 05403, USA, or visit its website at www.garden.org or www.kidsgardening.com.

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Introduction

If you want to grow food and maintain your garden without using synthetic garden chemicals and fertilisers, this book is certainly for you. But organic gardening is about much more than just producing safe food and chemical-free lawns. To garden organically and successfully, you need to enlist the help of nature and roll out the welcome mat to billions of soil bacteria, pest-munching birds, amphibians and other creatures. Organic gardening is also about making conscious decisions on sustainability and taking responsibility for actions that affect the world outside your back door, past the end of your driveway and beyond the boundaries of your home town.

Many people proudly claim to be environmentalists, while knowing very little about how to be a good steward of their own garden. This book gets you started on the path to making healthier choices for your own garden and the world, while having a lot of fun and exercise and gaining the satisfaction of carrying out informed and eco-friendly gardening.

About This Book

Organic gardening covers a lot of ground, so to speak – from maintaining a lawn and growing roses to harvesting fresh fruits and vegetables. This book takes you step by step through building and maintaining healthy soil, encouraging helpful insects and other organisms, choosing problem-free plants and getting them off to the right start. In addition to the basic concepts of organic gardening, we also include information about how to grow fruit and veg for eating, flowers for beauty, trees to sit under and lawns to stretch out on – without harmful chemical pesticides, fungicides or weedkillers, or synthetic chemical fertilisers.

Conventions Used in This Book

Here are a few conventions we use in this book, designed to help you navigate your way through the content:

- ✓ *Italic* is used for emphasis and to highlight new terms that are defined.
- ✓ **Boldfaced** text is used to indicate the action part of numbered steps.
- ✓ `Monofont` is used for website addresses.

We give measurements in metric, followed by imperial equivalents.

An 'x' in a species name indicates a hybrid cross: *C. x lavaleei*, for example, indicates the Lavalley hawthorn, a variety of Hawthorn (*Crataegus* species).

What You're Not to Read

Although we want to believe that you're going to pore over every word in this book, we know that you may be in a hurry or just want the basic information. Therefore, we make any 'skippable' information easy to recognise by placing it in sidebars or marking with a Technical Stuff icon. Although interesting and related to the topic at hand, such info isn't essential to succeeding as an organic gardener.

Foolish Assumptions

In writing this book, we make some assumptions about you:

- ✔ You want to create a safe, beautiful and healthy place for your family to work and play.
- ✔ You want to harvest the freshest, tastiest and most nutritious fruits and vegetables possible.
- ✔ You care about the environment and want information that helps you care for your garden or allotment in an ecologically sound way.
- ✔ You've heard about organic gardening but you need more specifics and perhaps convincing that organic is right for you.

Whether you come to this book in total gardening ignorance or have some experience under your fingernails, you can find plenty of hands-on, how-to information to make your organic garden better than you believed possible.

How This Book Is Organised

To make navigating through this book easier, we divide it into the following parts, each one containing relevant chapters.

Part I: Understanding the Basics of Organic Gardening

If you think that you want to become an organic gardener but aren't sure what that entails, start with this part. It contains plenty of detail to get you up and running, covering the basic concepts of organic gardening, from soil health to planning low-maintenance gardens.

Part II: Getting Stuck into Soil, Compost and Fertilisers

The foundation of organic gardening is creating and maintaining a rich and healthy soil. Turn to this part to get started on testing soil; recycling your garden and household waste to make your own compost; and buying and using natural, organic fertilisers.

Part III: Growing Organically in Your Garden

The chapters in this part describe how to grow the most popular vegetables, herbs, berries, fruits and nuts, trees and shrubs, flowers, bulbs and lawns. In each chapter, we offer advice about how to choose the best plants, how to plant and maintain them, and where to obtain more information.

Part IV: Managing Problems

Turn to this part whenever you spot trouble in paradise and want to discover what to do about it. Here you can find everything you need to know about insects, diseases, animal pests and weeds, including specific control measures and products. Most importantly, as an organic gardener you can find how best to avoid trouble in the first place.

Part V: The Part of Tens

Use these two handy chapters to impress your friends at parties and win them over to an organic lifestyle. You can find the best organic practices and ten ways to have an eco-friendly home and garden. Go spread the word!

Icons Used in This Book

This book uses a variety of icons to highlight neat tips, common pitfalls and interesting and helpful information. Here's what they mean:



If something saves you time or money, or helps you make a better decision, we flag the paragraph with this icon. This icon also appears by sources that help you find particular plants, equipment or help.



This icon indicates key organic gardening principles and practices.



This icon alerts you to actions that may be dangerous to you, your plants or the environment. Proceed with caution!



If an action, technique or idea is especially good for the environment, we use this icon. Although, of course, just about everything in this book is eco-smart.



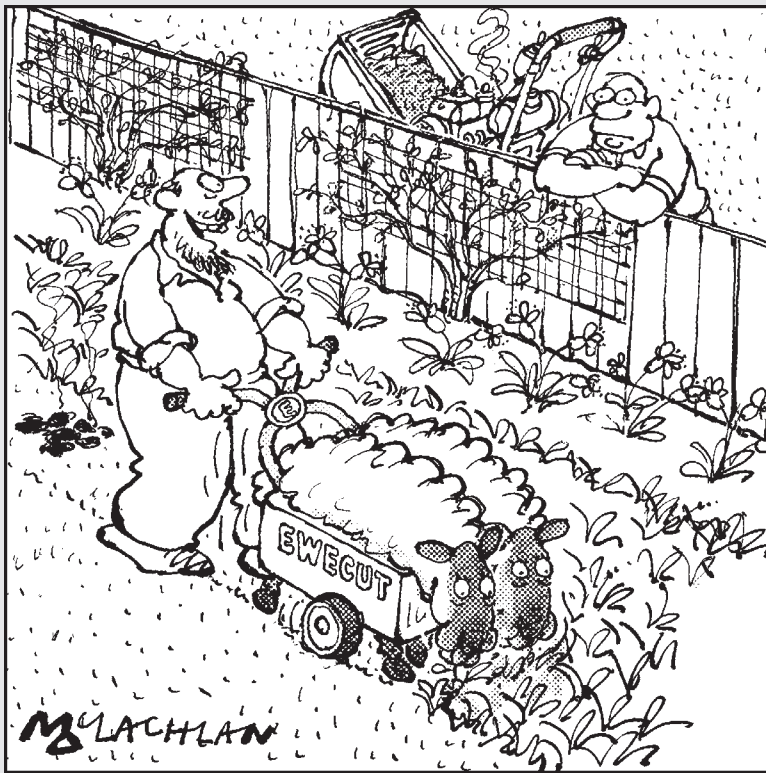
This icon marks more in-depth information for readers who want to dig a little deeper into the subject. If you just want to know the basics, feel free to ignore the info you find here.

Where to Go from Here

We design this book so that you can dive into any chapter that grabs your interest. If you're new to organic gardening, start with Chapter 1 or Chapter 22's summary of organic practices. If you're experienced and can't wait to plant veggies, go straight to Chapter 10. Or thumb through the Table of Contents or index for specific topics, until something catches your eye.

Part I

Understanding the Basics of Organic Gardening



'They may be slow but they're eco-friendly and they also fertilise the lawn at the same time.'

In this part . . .

If you're unsure what organic gardening is all about, jump right into this part for an overview. Chapter 1 introduces the foundations of organic gardening and living sustainably at home, along with basic organic planning techniques that you can use whether you're growing edible crops, flowers or border plants. Chapter 2 describes the benefits of gardening organically, right at home and in the wider environment. If you need to justify your organic preferences to chemically orientated gardeners, you'll have plenty to say after reading this chapter.

Evaluate your own garden's conditions, such as sun or shade, frost and soil conditions, with help from Chapter 3. And if you've ever wondered about climate and microclimates, this chapter is the place to turn. After gathering this information and more, you can match the right plant to the right place and begin planning your organic oasis. (Chapter 3 also covers creating a basic garden plan.)

Chapter 1

Gardening Organically: The Basic Techniques

In This Chapter

- ▶ Understanding the organic gardening philosophy
 - ▶ Nurturing your soil
 - ▶ Managing pests
 - ▶ Practising conservation
-

Everyone agrees that organic gardening means avoiding the use of synthetic fertilisers and pesticides. But the theory and practice of organic gardening go far beyond that simple concept. Growing organic food and flowers, and managing your whole garden on organic principles, represents a commitment to a sustainable system of living in harmony with nature. For many people, organic gardening is a way of life.

In this chapter, we deal with the fundamentals of organic growing, including the philosophy behind organic gardening and the specific techniques that lead to success.

Defining Organic Gardening

The ways in which people use – and misuse – soil, water and air affect the lives and habitats of plants, insects, birds, fish and animals, as well as humans. Organic gardening is all about preventing and treating problems in the least obtrusive, most nontoxic ways. Dedicated organic gardeners adopt methods that use cultural and natural biological processes to do the following:

- ✔ **Improve soil health and fertility.** A healthy soil is the foundation of every organic garden. Organic gardeners nurture the soil ecosystem by adding organic matter, such as compost or manure, and avoiding chemicals and synthetic fertilisers that can harm soil life. In turn, soil organisms consume and break down the organic matter, making the nutrients it contains available to plants.

- ✓ **Decrease erosion.** Exposed soil is vulnerable to erosion by rain and wind. When organic gardeners cover soil with mulch, cover crops or other protective materials, they preserve the integrity of this precious resource.
- ✓ **Reduce pests and diseases.** Organic gardeners minimise problems and reduce the need for pesticides or fungicides by relying on cultural techniques, such as proper pruning, removing dead or diseased plant material and using crop covers or barriers. Organic gardens can also use biological controls when pest problems occur.
- ✓ **Encourage plant and animal diversity.** Through diverse plantings and avoidance of harmful chemical products – even organic ones – organic gardeners promote healthy ecosystems that invite beneficial organisms, including pollinators and predators of garden pests, to take up residence.

Organic gardeners take their cues from nature. Instead of relying on the spray schedules promoted by pesticide manufacturers, organic growers observe what's going on in their gardens and intervene to prevent pest problems. When you see white butterflies fluttering around your garden, for example, you know that you need to protect your brassicas from cabbage whitefly, by covering your crops with fine insect mesh to prevent the butterflies from laying eggs in the first place.

Organic growers view their gardens as living ecosystems and work with nature to produce beautiful borders and healthy crops. No matter what plants you're growing – vegetables, fruits, herbs, trees, flowers, grasses – the same basic techniques apply, as the sections in this chapter demonstrate.



Depleting soil fertility, damaging and polluting ecosystems, and consuming excess water threaten the future of the Earth's safe and abundant food supply. The ways that farmers and individual gardeners and homeowners choose to farm, garden and maintain their land make a difference in whether the land can continue to house, feed and clothe people.

Gardeners around the globe have adopted organic gardening techniques to help nurture the health of the Earth and all its inhabitants. (If you need more convincing that organic is the way to go, turn to Chapter 2.)

Building Healthy Soil

Just as a durable house needs a strong foundation, healthy plants require soil that can provide their roots with nutrients, water and air. Few gardens are blessed with perfect soil, and even if they are, keeping soil healthy and able to support plants is an ongoing process.



Creating and maintaining healthy soil is the single most important thing you can do to ensure the success of your garden plants.

Building soil means providing soil life – microbes, worms, fungi – with the materials and environment these creatures need to do their jobs. Taking from the soil without giving anything back breaks the natural cycle. Harvesting crops, bagging lawn clippings and raking fallen leaves removes organic material that's ordinarily destined for the soil on which it falls. If the organic material isn't replenished, soil health declines. Substituting synthetic (non-organic) chemical fertilisers for naturally occurring nutrients may feed plants, but doing so starves the soil and reduces the mineral content of crops.

Adding organic matter is the most common – and most important – part of building healthy soil. Compost (which we discuss in Chapter 6) is a perfect source of organic matter; other sources include well-rotted manures and crop residues. Maintaining proper soil pH (a measure of acidity/alkalinity) is also vital, because it affects soil life and the ability of plants to use nutrients (flip to Chapter 5 for more on pH values).

Avoiding activities that damage soil is just as important. Compaction from heavy foot or vehicle traffic and misapplied fertiliser and pesticides, for example, can harm the soil's ability to support plant life. Part II contains everything you need to know about your soil and how to improve it in an organically sound way.

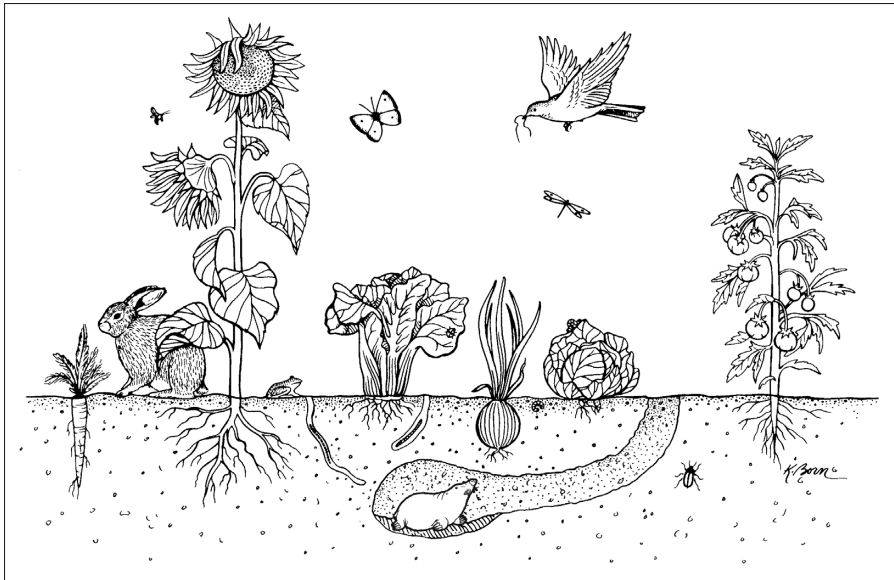
Planting Wisely

Organic gardens strive to maintain healthy, balanced *ecosystems* (communities in which each part contributes to and affects the lives of the other parts). Because plants evolved over millennia to adapt to specific growing conditions, they thrive when those conditions are met. When you choose plants that match your site's sun, shade, climate, soil type and soil moisture, you're well on your way to creating a healthy, thriving, problem-free garden.

The first step in planting wisely is understanding your region's climate, as well as your garden's particular attributes, which then allows you to match plants to planting sites effectively (Chapter 3 contains more about evaluating your garden in this way). For specific planting information and the low-down on growing a wide variety of plants organically – vegetables, herbs, berries, fruits, nuts and flowers – read the chapters in Part III. More precisely, we cover long-lived trees and shrubs in Chapter 15 and apply organic principles to lawn care in Chapter 16.

The second step is ensuring that your garden cultivates stable plant and animal communities. In nature, plants and animals live in balanced ecosystems (see Figure 1-1) in which each plant and animal species has enough food, water and *habitat* (place to live).

Figure 1-1:
Plant and
animal
communi-
ties extend
above
and below
ground.



In a balanced ecosystem, the predators have enough prey and the prey have enough predators. When one part of an ecosystem dies out or becomes too scarce, the plants and animals that depend on its function in the environment get out of balance, too. If honeybees disappear, for example, the plants that need bees for flower pollination can't produce seeds. If predators such as ladybirds become scarce, the insects they normally prey on – aphids – may become so numerous that they seriously injure or even kill the plants on which they feed.

Ensuring diversity of plant types

Organic gardeners mimic nature by encouraging diversity in their gardens. Natural plant communities contain many species of trees, shrubs and perennial and annual plants. This rich diversity helps each plant species survive in many ways:

- ✓ **Mixed populations** avoid insect and disease devastation because all the plants of a particular species aren't located next to one another. Although pests damage or kill some plants, they overlook others.
- ✓ **Deep-rooted plants** often bring soil nutrients to the surface, where they're released as the plant foliage dies and gets recycled into the soil, benefiting more shallow-rooted species.