

* Practical Country Living *

— IMPROVING YOUR —
GARDEN SOIL

10 Steps to Healthy Plants and Nutrient-Rich Food



Michelle Lindsey

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Introduction

Soil is more than just an inert medium. It is a vibrant community that feeds the plants that in turn feed us.

Many gardeners are obliged to start out with less-than-ideal garden soils. Many soils suffer from drainage problems and nutrient imbalances that limit the amount of produce that can be grown on them. Diseases, insect attacks, and poor-tasting vegetables are the result.

The solutions touted to correct these problems are often either complicated or costly. Manufacturers of expensive, hard-to-find amendments all clamor for our attention. Mystique surrounds processes such as composting, convincing us that everything must be done exactly the right way for success. Meanwhile, conflicting information abounds, telling us one day that peat moss will save our garden and the next that it will kill our plants.

The good news? Improving soil and growing vibrant, nutrient-rich produce doesn't have to be this complicated.

About This Book

Improving Your Garden Soil seeks to help you improve the quality of your harvests by cultivating the following benefits:

- Improved plant health.
- Fewer insect pests.
- Increased yield.
- Enhanced produce flavor and texture.
- More nutrient-rich food.

The approach to soil care presented in the following pages has been formed by two decades of gardening experience, mostly with organic row gardening on a problematic, weed-ridden clay soil in a low-lying area. Most recently that experience has been applied to a 100-square-foot raised bed filled with that same clay soil. The techniques used were drawn from years of diverse reading. Writers who have informed the thinking behind this book range from lunatic farmer Joel Salatin to the Kansas State University extension system, from smiling gardener Phil Nauta to square foot gardener Mel Bartholomew, who made soil improvement easier for gardeners by avoiding it altogether. Obviously this represents a wide philosophical spectrum.

The author is happy to report that these methods work.

10 Steps to Soil Improvement

This book simplifies soil improvement by using a 10-step approach:

1. Assessing your current soil.
2. Planning your soil improvement project.
3. Building soil depth.
4. Eliminating toxins, diseases, and pests.
5. Balancing the air and moisture in the soil.
6. Charging up the soil battery.
7. Balancing soil nutrients.
8. Building organic matter and humus.
9. Building a soil community.
10. Maintaining good soil.

This step-by-step process makes it easier to know where to start for beginners. It also helps bring poor soils into production quickly by targeting the most crucial limiting factors first. This will keep soil improvement from becoming overwhelming, and it will help you spend your gardening budget more effectively.

Note that you don't necessarily have to follow each step. If your soil is already in reasonable condition, you probably won't need to build depth or eliminate toxins, for instance. You can start with the assessments and planning process, then skip ahead to, say, building organic matter.

And, once you have achieved satisfactory soil, we'll address how to keep it that way. This book will continue to serve as a reference and a tool for further monitoring and improvement.

Note that this is a practical, hands-on book. Step-by-step directions have been provided to make the learning process easier, but you must do the work and start building experience with your own local soil conditions.

Creating good soil is not hard. It just takes time. But the delicious, tender produce you will harvest as a result makes it worth the effort.

Dig in!

1. Nitrogen (N).
2. Phosphorus (P).
3. Potassium (K).

So why is there so much emphasis on N, P, and K? These nutrients are essential to plants because they serve vital functions.

Table 1 Macronutrients

Macronutrient	Functions	Deficiency Symptoms	Toxicity Symptoms
Nitrogen	Making chlorophyll; assisting plant growth and reproduction; synthesizing proteins	Slow, stunted growth; chlorosis; purple appearance on underside of leaves; purple stems; wilting and loss of older leaves; reduced yield	Wilting; excessively, bushy growth; burnt leaves; increased susceptibility to pests and diseases; susceptibility to drying out; absence of fruit
Phosphorus	Promoting fruit growth and ripening; enhancing root growth; providing vigor and stress resistance; enabling division and energy transfer	Vague symptoms except with severe deficiency; slow growth; unusually dark green color changing to red, especially on lower leaves; burnt leaf tips; leaf death; delayed fruit set; dead spots on fruit	Withering; generalized yellowing; iron deficiency; zinc deficiency

Potassium

Activating enzymes; regulating water pressure; building cellulose; enhancing produce quality	Symptoms appearing in older tissues first; wilting; stunted growth; increased susceptibility to disease and weather stress; scorched, curled leaf edges; chlorosis between leaf veins; purple spots on undersides of leaves	Nitrogen deficiency; calcium deficiency; magnesium deficiency; manganese deficiency
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Nitrogen (N)

Soil nitrogen levels can easily be depleted by plants during periods of rapid growth. Some plants, such as corn, are particularly heavy feeders.

Also, soil microorganism health is key to making sure that any nitrogen in the soil is readily available for plant consumption. Therefore, in some cases, a nitrogen deficiency may be caused by insufficient soil life rather than an actual mineral shortfall.

Natural nitrogen sources include grass clippings, legume cover crops, and animal manure. Poultry manure is a particularly potent source, although bat guano and worm castings are useful, as well. Balanced compost will also contain nitrogen.

To prevent future deficiencies, consider taking the following steps to raise nitrogen levels and promote microorganism health: