

The Complete Book of Herbal Teas

By Marietta Marshall Marcin

Introduction

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Introduction

A few years ago some pesky mint appeared in my garden and began to spread, crowding out carefully cultivated annuals and perennials. I was beginning to plan a massive eradication program, when I came across a recipe for mint tea. Well, I thought, why not try it? The raw ingredients certainly were available. So I pulled up a few handfuls of mint and brewed my first cup of home-grown tea. It tasted great. So great, in fact, that the endangered garden mint took on new significance and was spared. The following year I planted lemon balm, fennel, marjoram and thyme, and tried those recipes, too. The result? I became hooked on herbal teas.

Later, I learned tea is drunk more than any other liquid except water. Throughout recorded history tea has been used to sustain life, enhance sleep, restore health, and ease conversation, to name just a few of its uses. Some people like it hot. Some like it cold. Some like it mixed with sugar, lemon, honey, milk, or with stronger stuff, such as gin or brandy. And some like it straight.

In the narrowest sense of the word, tea refers to the leaves or flower buds of shrubs in the genus that was named *Thea sinensis* by Swedish botanist Carolus Linnaeus. Since *Thea sinensis* tea is a close relative of the camellia flower, it is sometimes referred to as *Camellia thea* or *Camellia sinensis*. Broadly speaking, however, tea is any drink made from steeping fragrant leaves, berries, seeds, flowers, roots, or bark in boiling water.

Imported *Thea sinensis* teas all come from evergreen plants of the same genus. Lapsang souchong tea is a smoked version of *Thea sinensis* leaves, and black, green, and oolong teas can also be made from leaves of the same plant. They differ only in the degree of fermentation they have undergone during processing. Most imported teas are grown at high

altitudes where it is continually hot, wet, and very humid. Darjeeling tea, for example, comes from the mountains of Darjeeling, in India.

Imported *Thea sinensis* teas traditionally have been served side by side with teas made from herbal leaves plucked from the garden. Indeed, the decision to serve *Thea sinensis* teas rather than herbal teas has often been made more for reasons of prestige than for taste.

As coffee prices have gone sky-high, so too has the price of store-bought teas escalated. But as I found, you can easily grow and brew exotic herbal teas, full of tastes and aromas you never believed possible. The cost to you is a few pennies a cup; the experience is priceless. Herbs that make exciting teas can be grown in your garden or in flowerpots on your windowsill, whether you live in southern California or northern Nova Scotia, in London or Sydney.

This book gives you all the information you need to brew the perfect cup of herbal tea. It spells out how to grow the plants, harvest the tea components, prepare and store the ingredients you'll need, and mix them for interesting blends. You'll learn where to buy seeds and plants. You'll even find where to buy bags and containers in which to package your own "private label" blends. Sound complicated? It's really easy once you know how. And, while you're harvesting herbal teas either on a small or grand scale, you can also use them as potpourris, fabric dyes, garnishes, and seasonings for the cooking pot.

People have always sworn by the medicinal qualities of herbal teas. While health authorities, such as the United States Food and Drug Administration frown upon claims that herbal teas can actually cure ailments, millions of people maintain they do. I'll outline some of the medicinal uses to which herbal teas have been put. But by no means are the herbal teas described in this book presented as prescriptions for medical ailments. Clearly, as with any medical problem you may have, it's important to consult a professional practitioner for diagnosis and treatment. [See how to loss wieght >>>](#)

This book is the only guide you'll need to take the journey of taste discovery that comes from brewing herbal teas. Let us take that trip together.

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1. A brief history of tea

Deep in the misty mountains of China, the Bodhidharma, the founder of Zen Buddhism, sat in a garden near the emperor's palace, meditating on the perfection of Buddha. Called Ta'Mo' (White Buddha) by the Chinese, the swarthy, rotund saint had come to China from India bearing the sacred bowl of his ancestors. Ta'Mo' vowed to demonstrate his devotion to Buddha by sitting before a wall and meditating for nine years.

Spring turned to summer; autumn came with crisp air and colored, falling leaves. Still Ta'Mo' meditated. Winter came and covered the saint's cloak with snow as he sat unblinking and unsleeping. Finally, after many years had passed, the Bodhidharma's attention wavered, his chin dropped, and his eyes closed in sleep.

When Ta'Mo' awakened-perhaps a day, perhaps a year later-he was so angry with himself for neglecting his meditation that he took out a knife, sliced off both his eyelids, and threw them to the ground. The saint's eyelids took root in the rich soil and grew into a tea bush, the symbol of wakefulness.

This is the most popular of the legends about the origin of *Thea sinensis*, the botanical name for what is commonly called the tea plant, which we associate with black, green, oolong, and orange pekoe teas. Like other stories about the origin of tea and the rituals of tea drinking, fact and fiction are intertwined so thoroughly that it is hard to separate them.

The discovery of *Thea sinensis* tea

Ta'Mo' died about 530 A.D., but the Chinese claim they discovered the tea plant much earlier. They called it "the gift of heaven," and it was mentioned, along with other herbs used for medicinal purposes, about 2737 B.C. in the writings of the legendary emperor Shen Nung.

According to legend, Shen Nung observed that people who boiled their drinking water remained healthier than those who didn't, so he always made sure his water was boiled. On a trip to a neighboring province, the emperor's servants started a fire to boil water for him. As the water was heating, a breeze blew some of the tender leaves from the uppermost twigs of the firewood into the pot. Attracted by the fragrance of the resulting liquid, the emperor "tasted it and found it good," as the saying goes. Thus began a tea-drinking custom that has persisted to this day.

Originally the tea made by infusing the *Thea sinensis* herb was used only as a medicinal brew, as were teas made from many other herbal plants. *Thea sinensis* tea soon became a popular beverage because of its flavor, and the word tea came to be associated with this plant. Although the cultivation of tea began in China, it gradually spread to Japan and the rest of the Far East. It was not cultivated in India until 1832, when the British introduced it there, long after it had become a popular beverage in England and the United States.

Derivation of the word tea

The word tea has an interesting history. When *Thea sinensis* tea was first introduced in England it was pronounced cha or tcha from the Mandarin and Cantonese dialects spoken in Macao, the port from which the tea was shipped. When a Cockney housewife says it would be nice to have "a cup of char," she is speaking perfectly respectable Chinese, a holdover from the original word. Later tea was imported to England from the Chinese port of Amoy. In the Amoy dialect, it was called t'e, and it was from this word that the word tea was derived.

The word tisane came from the Latin *ptisana* and the Greek *ptisane*. Originally, tisane meant pearl barley and barley water, but over the years it has come to mean any infusion of herbal leaves in boiling water.

Tea comes to England

No one knows for sure exactly when *Thea sinensis* tea was first brought to England, but in 1658, an enterprising merchant named Thomas Garway placed an advertisement in the publication *Mercurius Politicus* announcing that: "The excellent and by all Physitians approved China Drink, called by the Chineans Tcha, by other nations Tay, alias Tee, can be procured at Sultanness Head Cophee-House in Sweeting's Rents by the Royal Exchange." Garway extolled the medicinal qualities of tea as a stimulant. He wrote that "tea removeth lassitude, vanquisheth heavy dreams, easeth the frame, and strengtheneth the memory. It overcometh superfluous sleep, and prevents sleepiness in general, so that without trouble whole nights may be passed in study"

Dutch ships from the Orient brought tea, along with other "riches of the rising sun" to Holland, and from there Lords Ossory and Arlington began bringing consignments of tea to England.

What started as an infant trade quickly became a rage. Soon *Thea sinensis* teas were being served in all of England's most famous coffeehouses.

As the popularity of tea drinking grew, tax revenues from the sale of beer and wine declined. To compensate for this loss of income, in 1660 Charles II imposed the first English tea taxes, paving the way for a thriving black market in tea.

The earliest American settlers did not share the English passion for drinking imported teas. Tea drinking was probably introduced to the colonies somewhat later, by the burghers of New Amsterdam. William Penn brought *Thea sinensis* tea to the Quaker colony he founded in what is now Delaware in 1682. But by the 1750s, American colonists were quaffing tea as heartily as the English.

Early recorded uses of herbal teas

Herbal teas, other than *Thea sinensis*, have been brewed for thousands of years. The earliest records talk of using herbs for healing rather than flavoring. In 410 B.C., Plato mentioned herbal teas in his writings. Seventy years later, Aristotle discussed herbal teas, and his disciple Theophrastus wrote a detailed work, "On the History of Plants," which described the uses of herbs. Herbals with detailed illustrations, and instructions for brewing herbal teas, have been revised and expanded ever since.

The Roman statesmen Cicero, Seneca, and Pliny the Elder practiced advanced forms of horticulture and wrote about their experiences. Pliny's *Natural History* (77 A.D.) affirms the importance of growing herbaceous plants both for kitchen and medicinal uses. He outlined how to plant, transplant, and harvest them. Pliny also spelled out the medicinal uses of each herb, and also how to administer each one -as lotion, powder, or tea. Many herbal teas were to be brewed with water and vinegar, he said, which may explain why herb teas weren't popular as beverages until later, when they came to be brewed in water alone. His descriptions of the juices and flavors of each herb characterize savory and wild marjoram as having "an acrid taste," others as being "sweet" or "pungent."

Pliny catalogued the germination times of many herbs, noting that some plants continued to appear every year, while others had to be newly sown from seed if they were to come up again. "No seed is more prolific than basil," he said. "They recommend sowing it with curses and imprecations to make it come up more abundantly."

Wealthy Romans took their herb culture seriously. The mild Italian winters still were not quite warm enough to keep some tender herbs from being destroyed, so plants were placed under thin sheets of mica (plate glass had not been developed yet) to protect them from the chill. And warm water was often piped around the roses, which were particularly admired for both their beauty and medicinal qualities.

Herbal teas in the New World

In England, herbal teas were widely cultivated and used. When the Pilgrim fathers sailed to the New World, they brought seeds or plants of their favorite herbs with them. Most larger houses had both an herb garden and a "still room" for cultivating herbs.

While the tea of *Thea sinensis* remained the favorite herbal beverage, those who couldn't afford it continued to make teas from other, more easily accessible herbs. Chamomile, peppermint, and elderflower teas were especially popular.

One herbal tea beloved of the colonists was Oswego tea, made from the dry flower heads of American wild bergamot (*Monarda didyma*), also called bee balm. (The resulting liquid tastes like one of the scented Chinese teas) Some say the colonists learned to make Oswego tea from the Indians, others that it was devised as a New World version of a European tisane.

After the Boston Tea Party, patriotic ladies banished imported tea termed "the baneful herb" by the clergyman and educator John Andrews-from their tables and turned to domestically grown herbal teas. They called these beverages "liberty teas." Some of their herbal combinations-made from mint, balm, rosemary, and sage-are still favorites today.

After the Revolutionary War, the Americans imported tea directly from China, and *Thea sinensis* became easily attainable and inexpensive once again. A few of the more flavorful herbal beverages were still used, but most home-grown teas were returned to the medicine chest. Imported herbs were now also easy to come by, for those who wanted them, so the cultivation of herbs declined, too.

It wasn't until the outbreak of World War I that England and America were faced with the unpleasant realization that they had become largely dependent on German sources for medicinal and cooking herbs. There ensued an upsurge in home-grown herb cultivation.

Recent growth in the herbal tea market

The use of herbs in cooking has never been as great in England and America as in France. Recent interest in gourmet cookery, however, has meant that more people are using herbs in the kitchen. Along with this development has come a marked increase in the consumption of herbal teas.

The natural foods movement has also contributed to the growing appreciation of herbs-they have no food additives, artificial coloring, chemically produced flavors, or caffeine. The discovery that caffeine is not only an artificial mental and physical stimulant but also an addictive substance has caused the health-conscious to turn more and more to herbal teas. For while coffee, cocoa, and *Thea sinensis* teas contain caffeine, herbal teas do not.

For many years a favorite only with health-food devotees, herbal tea is becoming universally popular. In Europe, herbal tea sales have soared from 5 percent of the tea market several years ago to more than 60 percent today. In the United States, growth has been more moderate, but sales have improved each year.

Packaged herbal teas now account for about 10 percent of the United States tea market, up from virtually nothing fifteen years ago. Twenty years ago, the industry leader, Celestial Seasonings, Inc., wasn't even in business. In 1975, five years after it began marketing colorful little boxes of herbal teas through health food stores, the company broke the \$1 million mark in sales. Sales doubled in 1976. In 1981, gross revenues rose to over \$23 million. Celestial now sells about 4 million pounds of herbs a year. [Loss weight easily >>>](#)

Sensing a sharp inroad into the China tea market, the two large American tea companies, Lipton and Bigelow, recently jumped onto the herbal tea bandwagon. Sales of herbal products in the United States are now estimated at between \$150 and \$200 million a year, with packaged herbal teas accounting for about \$90 million of the total. The Food and Drug Administration entered the herbal tea picture a few years ago, ordering two companies to stop producing sassafras tea, an age-old prescription for upset stomach and for nerves. When boiled, sassafras releases a substance called safrole, a known carcinogen which the FDA has banned as a food additive. Researchers later discovered a person would have to ingest more

sassafras tea in a day than most people do in a year in order to get the same concentration of safrole that had produced some cancers in laboratory animals, so the ban on sassafras tea has been lifted. There is no doubt, however, that excessive use of certain herbal teas can be injurious to your health.

Dr. James Duke, head of the Medicinal Plant Resources Laboratory of the U. S. Department of Agriculture, believes stevia and catnip are hallucinogens if taken in excess. He also maintains that arnica, belladonna, bittersweet, helbane, hemlock, and secuda, commonly sold for herb teas, are poisonous, and that bloodroot contains some of the same alkaloids as opium. This has made it a rage in some circles for making "high" tea.

Despite these gloom-and-doom announcements, however, most herbal teas are beneficial, not poisonous, if drunk in moderation.

One of the most highly touted herbal teas is ginseng. Tour any herb store or Chinese emporium and you will see a hefty display of it. Ginseng is believed to increase sexual potency, lengthen lifespan, and produce a feeling of well-being. Korean red root ginseng, Korean white root ginseng, Manchurian ginseng, Manchurian red ginseng, Canadian ginseng, and, for the connoisseur, Imperial Chinese ginseng, are considered the finest ginseng teas available. They are thought so potent that they are usually taken only once or twice a year. One variety of ginseng, *Panax quinquefolium*, is grown in the United States, although it is difficult to cultivate.

The FDA concerned itself with ginseng for a while, but doesn't anymore. FDA laboratory tests indicated ginseng has no effect on the body whatsoever, though satisfied ginseng users beg to differ.

Producing enough herbs to meet the new demand for herbal teas has become something of a problem. Since they must be picked by hand, most herbs are grown in Third World countries where labor costs are low. Many herbs are also picked wild, or are purchased from small growers with backyard plots.

Controlling quality by growing your own herbs

Harvesting, processing, and shipping delicate herbs grown in many different places can make quality control difficult. You can surmount these problems, though, by growing herbs yourself. You won't be growing them in such great quantities that pickers will be hard to find. You can sort and prepare them, keeping their quality as refined as your taste. And you can experiment with blending them, augmenting the blends with a few ingredients from your local herb supply store.

Herbs you grow for tea also make good additions to salads, soups, or main dishes. Extras can be used in potpourris, sachets, herbal butters, and vinegars, or to make decorative, long-lasting floral displays that scent your home long after the growing season is past.

People with vegetable gardens-and it is estimated that close to one-half of all families in the United States now grow some of their own food-find herbs are easy to grow. In fact, mint, bergamot, chamomile, and dandelion have been growing around us, wild, all along. So let's move on to the practical business of growing these herbs, and many others, and discovering just how easy it is to brew your own herbal tea delights.

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2. Guide to cultivating herbs

The most pungent herbs are said to grow on rocky hills near the Mediterranean coast. There, in poor, dry soil where the sun beats down on them all day, a high concentration of essential oils (which are what give herbs their flavor and aroma) builds up in the leaves. This is nature's way of keeping the plants from drying out and dying. Early growers tried to duplicate the austere environment of these native plants. They believed poor soil, little water, and hot sun would guarantee the most aromatic basil, thyme, and rosemary. No matter that they had to harvest half an acre of plants for a few handfuls of leaves; the taste and aroma made it all worthwhile.

Today's herb gardener has neither the space nor patience to grow stunted, small-leaved plants that yield one teapot's worth of herbs when the garden is stripped. Fortunately, plant geneticists have developed herbal strains that have large amounts of essential oils in their leaves but are also big and bushy plants that thrive in good, well drained soil.

The indoor gardener, using improved seeds and plants, as well as modern growing methods, can get a fine yield of herbal tea from a single potted plant placed on a windowsill or under grow-lights. The outdoor gardener can derive immense satisfaction and a gratifying crop from a small herb plot tucked in a sunny corner or on a small patch of ground near the kitchen door.

Whether you're starting your herbs from seed, nursery plants, or cuttings or rootings given to you by generous friends, you'll want to ensure their success by providing them with a good growing environment.

Preparing the soil

Most of today's herbal strains do nicely in aerated soil that is well drained, crumbly, and enriched with a moderate amount of fertilizer or organic matter to supply the plants with nutrients.

To check how good your soil is, insert a spading fork to its full depth. If it goes in easily with little or no effort, you're lucky-you probably already have ideal soil for your herbal teas. If it scrapes or won't go in all the way, you'll have to do some work. Usually, this will mean adding conditioners. Most soils benefit from the addition to their bulk of up to 1/3 peat moss, compost, sawdust, or leaf mold, well mixed, to a depth of at least 1 foot. If you have clay soil, you'll want to add even more of these conditioners to get an herb planting bed that will provide good drainage and enough friability so the root systems will remain moist (but not soggy) and will spread easily.

If you have impossibly heavy clay soil or an impermeable layer of hardpan not too far below your planting surface, you can create a raised planting bed filled with a more desirable soil mix. Raised beds can be surrounded by bricks, railroad ties, rocks, boards-anything sturdy enough to keep the earth contained. Incidentally, a raised bed not only guarantees good drainage but also becomes warm and dry earlier in the spring, allowing you to plant sooner than at ground level. For this reason, many gardeners whose soil is good still prefer raised planting beds for their herbs.

Avoid preparing your soil on a day when the earth is wet and sticky and will compact. You can test for the right time to cultivate by taking a handful of earth and squeezing it together into a ball. Press this lump gently with a finger of your other hand. If it holds together, the ground is too wet to work. If it crumbles, it's time to roll up your sleeves and start digging.

Be sure to distribute soil conditioners evenly throughout the mixture. Start by spading your bed to the depth of the spading fork, so that it's loose. Then spread the organic materials over the surface and systematically dig them in. As you insert your spading fork, turn the soil to one side or the other so that the organic materials trickle through the tines of the fork and down the face of the soil the full depth of the spade. This way you avoid leaving the soil on top of organic matter that is buried in a layer underneath.

You may work the soil several times before it is the right consistency, but once you've paid your gardening dues by creating a good planting bed, it can be maintained easily for several years and will reward you with bigger, healthier plants.

Checking soil acidity and alkalinity

After you've worked conditioners into the planting area, you should check the pH factor-acidity or alkalinity-of the soil. The pH scale runs from 0 at the acid end to 14 at the alkaline end. Most herbs do well in a fairly neutral pH range of 6.0 to 7.5.

To determine the pH factor of the soil in your garden, you can test a sample of soil yourself with the type of kit sold at most garden centers. These kits are simple to use.

If you find the planting mixture is too acid, mix 5 pounds of agricultural limestone into each 100 square feet of planting area to raise the pH by 1/2 to 1 point. If the mixture is too alkaline, add 3 pounds of iron sulfate or aluminum sulfate to each 100 square feet to lower the pH by 1/2 to 1 point. For the few herbs that prefer more acid or alkaline concentrations, you can spot work these minerals into the soil around the plant.

Planning for outdoor planting

If you're planting seeds outdoors, plan carefully where you want to put them (see chapter 3 for full information on planning your garden). By planting right where the plants will be growing, you'll know exactly which herbs are where (but it's still a good idea to use label markers to help jog your memory). Also, you can thin the herbs in place; and you won't risk loss from later transplanting.

Water your planting area well the day before you plan to seed. This way, newly sown seeds will get the necessary moisture to help them sprout, and there will be less likelihood of washing them out just after they've been planted. Make sure all danger of frost is past and that the soil has begun to warm up. If there is a short growing season in your area, slow-growing plants with long germination periods should be planted earlier, indoors or in a cold frame, then transplanted into the garden when they're established. Otherwise, they won't yield a crop of any significance before the end of the growing season.

For centuries gardeners have considered moon phases when planting seeds, because of the extra light, darkness, and/or gravitational pull provided by the lunar cycle. Generally, it's believed annual herbs (which live one season only) should be planted during the first, or second lunar phase. Biennial herbs (which live two seasons), should be planted during the third or fourth lunar phase. Perennials (which may live many years) should be planted during the third lunar phase. However, all root crop herbs should be planted during the third and

fourth phases, when added darkness helps them send their roots deep into the ground. More exact planting time can be determined by consulting your newspaper (the weather report usually shows moon phases) or an almanac.

Presoaking seeds

Many herb seeds are slow to germinate but sprout more quickly if you soak them in water before you plant them. The night before I'm going to plant indoors or outdoors, I put seeds of each herb into separate saucers filled with water. I place the seed packet under each saucer, so I'll know which is which when morning comes. Then I lock up my cats, so they won't help themselves to a nocturnal drink from the saucers or mix up the seeds. In the morning, I remove excess moisture from each saucer with a sponge and the tip of a paper napkin. Then I plant my seed varieties one by one.

Planting seeds outdoors

If winters aren't too severe in your climate, you can plant dill, borage, and other slow-germinating seeds outdoors in the fall. They'll come up nicely in spring. Fall planting should be done before autumn frosts begin, but late enough in the season so that seedlings won't emerge before winter only to be killed when cold weather arrives. Check seed packets for average germination periods and for instructions on planting in your climate.

Before you plant, make shallow scratch lines with a hoe or trowel to guide you when sowing. Place seeds in the furrows, and cover them lightly with soil. Seed packets usually spell out how deep seeds should be placed-this varies from herb to herb. If planting depth isn't spelled out, a good rule of thumb is to plant seeds to a depth of two to three times the diameter of the seed.

Make sure the soil covering the seeds isn't lumpy or heavy. You can sift it over the seeds through a screen, making sure it is even and fine.

After you've covered the seeds, firm the planting area with your hand or a board. If the surface has dried out, moisten it lightly with a fine spray of water, being careful not to uncover or dislodge the seeds. In the days that follow, continue to keep the soil damp (not soggy) by watering with a very fine spray.

Many herbs are look-alikes as seedlings. Some, like oregano and marjoram, continue to look like one another even into maturity. Don't count on your memory to remember which herb is which or you might be in for some unpleasant taste surprises when you brew the herbal teas. Label seed rows or planting spots with plastic or wooden markers, using a waterproof, indelible pen. I use 1-inch-square stakes about a foot long, which I drive into the ground 6 inches deep so they won't be uprooted. Each stake is prominently marked with a wide tipped pen. If markers become dirty and hard to read after a couple of years, I pull them out one by one, sand them lightly, and relabel them.

Annuals and biennials usually germinate more quickly than perennials, but some biennial herbs (like parsley) take a long time to appear. Be patient. If you're using good new seed, have planted properly, and haven't had an excessively cold or rainy spell, the little plants will probably emerge just as you're giving up hope. Remember, though, most herbs germinate best at 70° F (21° C) or warmer, and they prefer 60° to 65° F (15° to 18° C) temperatures once they've sprouted, which is not easy to accomplish outdoors. That's why many gardeners prefer to start seeds indoors under more manageable conditions.

Thinning seedlings

Whether you're planting outdoors or indoors, thin the seedlings after two pairs of true leaves develop, so the remaining plants will have enough room to develop. Try to snip or pinch off weaker seedlings (pulling them up can sometimes uproot good ones), even if it means transplanting strong ones that have sprouted in one area.

In hot weather areas, leave plants closer together so foliage will shade the soil. If necessary, you can thin again when the seedlings are larger.

By all means, save the little plants you've gleaned when thinning. If leaves are the part of the herb used to brew tea, treat yourself to a cup as a reward for your efforts!

Planting seeds indoors

Less hardy herbs, or those that take a long time to germinate, can get a head start if you plant them indoors 6 to 9 weeks before the last frost is expected.

You can plant in ceramic, plastic, or peat pots, or in wooden or plastic flats (trays). All containers must have holes in the bottom to provide good drainage, and must be scrubbed absolutely clean so they won't transmit disease to new seedlings via plant pests still lingering from previous plantings. Wooden flats, in particular, may continue to harbor disease-causing organisms. I sterilize mine by putting them into a 160° to 180° F (71° to 82° C) oven for about half an hour. The stench is awful as they're "cooking," but the results are good.

Once they've cooled, fill your planting containers with a good sterile potting mix. You can buy this ready-made, or, if you prefer, you can make your own. One commercial herb gardener who grows thousands of plants each year asserts that gardeners who make their own herbal planting mix will get good results by combining 1 part each of soil, sand, peat moss, and perlite. This mixture is good for both indoor and outdoor herb planting.

No matter what planting mix you decide to use, screen it through a 1/4-inch mesh screen (hardware cloth) to break up the particles.

If you're using garden soil and compost, you'll want to make sure the mix is sterile. Bake it in a 160° to 180° F (71° to 82° C) oven for about 2 hours. Once again, the smell will be strong. Plants potted in such soil are unlikely to get damping-off disease, a fungus which attacks seeds and tiny seedlings.

If you want to prevent damping-off disease without sterilization, you can saturate the planting mix with a solution of commercially prepared fungicide. You can also make your own fungicide by mixing 2 parts of finely ground copper sulphate with 11 parts of fresh ammonium carbonate. Store the mix in an airtight glass jar. When you need a solution, dissolve 2/3 ounce of the mixture in a little hot water. Then add enough cold water to make 1 gallon. Store the solution in a plastic or porcelain container (not a metal one) and use it immediately.

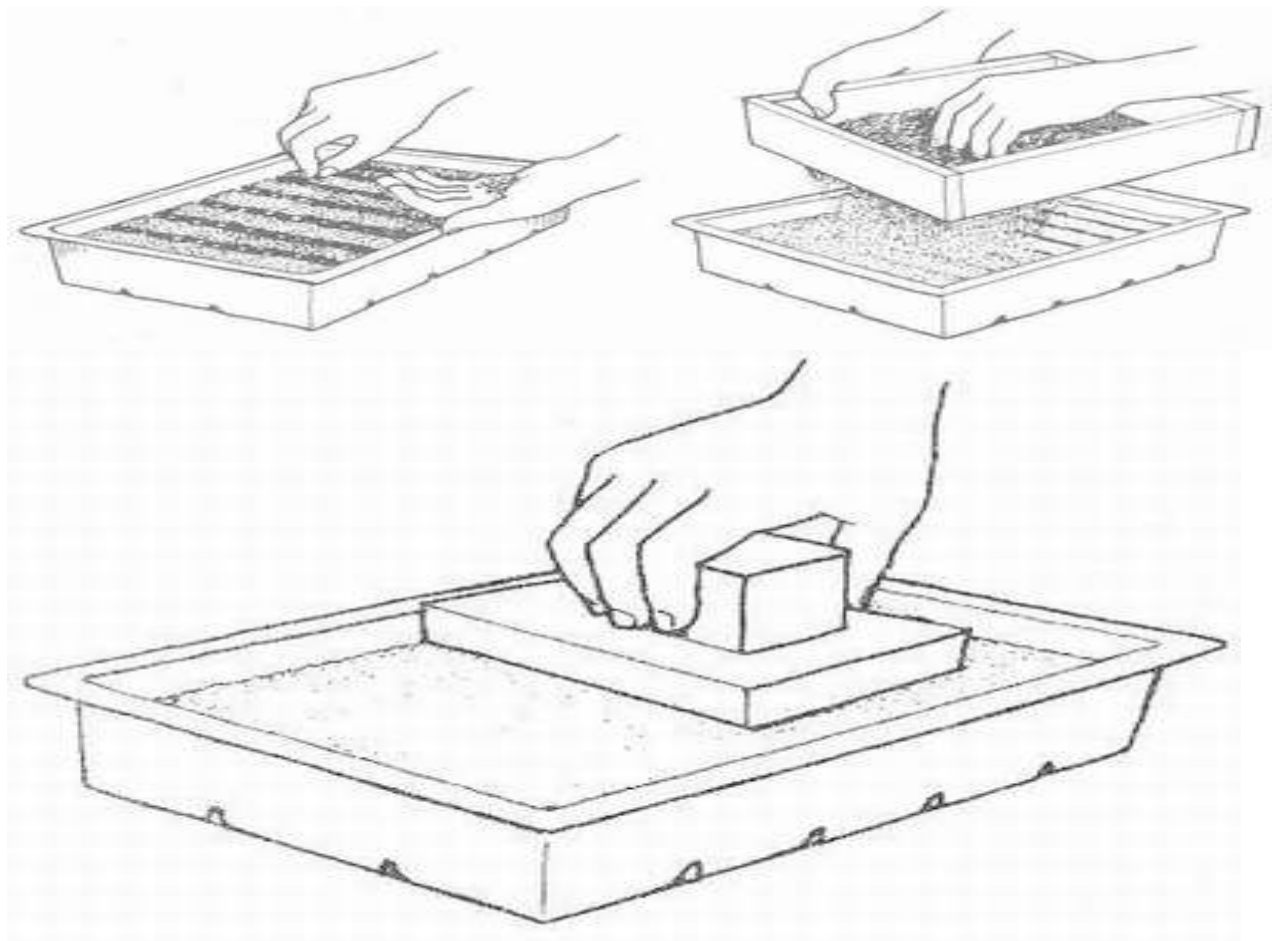
Organic gardeners, who shy away from chemical additives, maintain that they can control damping-off disease by:

1. Using sterile potting mixture
2. Providing seed flats with proper drainage
3. Keeping flats in a place that is low in humidity and has good ventilation

4. Sowing the seeds in a mixture of equal parts of compost and sand, and covering the seeds with pulverized, heated clay
5. Sowing seeds sparsely, so they aren't crowded

Once you've filled your planting container with potting soil, tamp it down gently to 1/2 inch below the top of the flat or pot and water it well.

If you're sowing several rows of herbs in a flat, make shallow indentations about 2 inches apart for each row. I use a pencil length pressed into the mix. Sow seeds in the rows, labeling each row with a wooden or plastic marker, and cover the seeds lightly with sifted planting mix. If the seeds show when you water or mist them, it means you haven't covered them deeply enough, and should sift a little more soil over them.



The best way to water newly sown seeds without disturbing them is to place the planting containers in a tray of water. Allow them to soak until you see that the top surface is thoroughly wet.

Annual, biennial, or tender perennial herbs that originated in hot climates usually germinate better if the seeds are kept fairly warm. You can accomplish this by putting an electric soil-warming cable (available at garden supply stores) on the bottom of the flat and keeping it plugged in until the plants have emerged. Or you can place an incandescent lamp under the flat to warm the bottom, keeping the temperature at 70° to 75° F (21° to 24° C).

Providing adequate light

The best place to put flats or pots is in a window in direct sunlight where they'll get heat and light all day. If your window doesn't face due south (or north in the Southern Hemisphere), you'll have to rotate the flats and pots to keep the plants growing straight.

If you don't have a sunny exposure, you can use fluorescent grow lights. The usual arrangement is two tubes, 24 or 48 inches long, in a commercial shop-type fixture. Mine are suspended from heating pipes in my basement by chains attached with S hooks at the fixture end. This way I can raise or lower the lights to accommodate growing plants. I plug the fixtures into automatic timers, allowing from 12 to 16 hours of light per day.

Regular fluorescent lights can also be used, but they lack some of the benefits of grow-lights, which are designed to promote plant growth. Some gardeners who have sunny windows use grow-lights as well to ensure a longer day for their plants.

Begin by placing newly seeded flats and pots only 3 or 4 inches under the fixture so emerging seedlings won't become "leggy" trying to reach the light. Once the plants have established a couple of sets of leaves and are doing nicely, you can move the lamps up, or the plants down, depending on your arrangement. Make sure the plants never touch the lights.

If the herbs are in a dry place, mist them daily, but be sure you do this early in the day so they dry thoroughly before the lights go off or the sun goes down. Otherwise, they may develop fungus disease.

But, you say, why should this be? After all, dew forms on outdoor plants at night, and they do get mildewed. That's true. But outdoor plants have constant ventilation, which can't be duplicated in indoor growing situations.

Be sure to thin indoor seedlings, just as you do outdoor ones.

Transplanting

Seedlings grown indoors in flats or pots, plants raised in the nursery, or cuttings or rootings taken from other plants should all be transplanted carefully if they're to make a successful transition to the hostile outdoor environment with its variations of temperature, wind, and moisture.

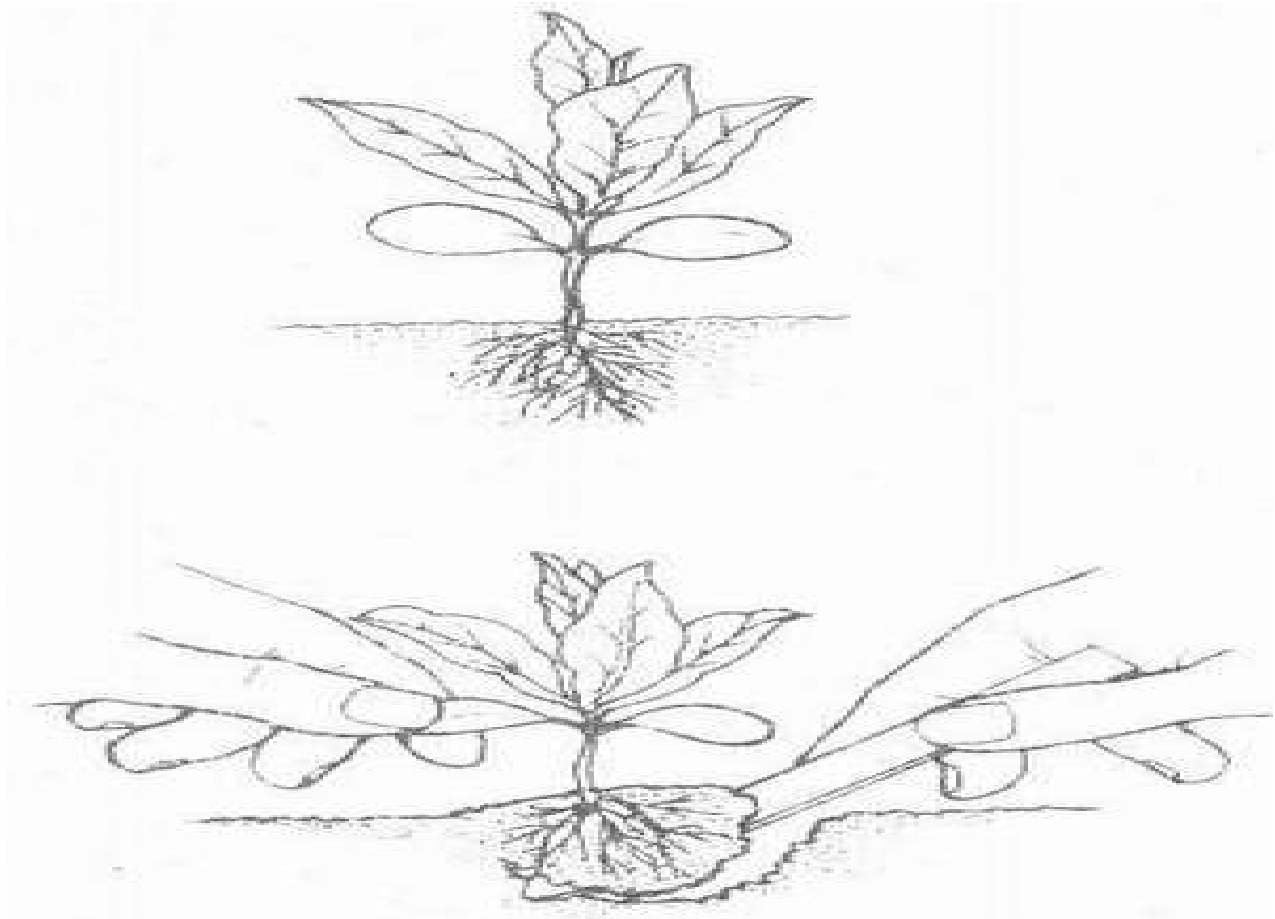
To prevent transplant shock, you can "harden" indoor plants by introducing them gradually to the harsh world outside. A few days before the transplanting, place them outside in a warm, sunny, and protected spot. Leave them for a few hours each day, but be sure to bring them safely indoors if the sun stops shining, the temperature begins falling, or whenever wind or cooler weather threatens. After a few days of hardening, your plants should be acclimatized and ready for outdoor planting.

Transplant on a mild, overcast day or just before sunset, when the sun will not beat on the relocated plants. The dark and dew of night helps them recover before morning.

If you must transplant on a sunny day, be sure to protect the transplants from excess heat and light by constructing a cheesecloth umbrella suspended on stakes, or by pushing a shingle, floor tile, or leafy twig into the soil on the sunny side of the plants to shelter them.

To move seedlings, lift them out of their growing containers one by one. Pry up the root system of each with a plant marker, tongue depressor, or spoon, trying to keep as big a ball of soil around the roots as you can. Steady each little herb plant as you move it by gently holding a leaf (not the tender stem, which can easily snap) and lower the root ball into a prepared moist hole. If you've planted in peat pots, you can place each seedling in its hole, pot and all. Expanding roots will grow through the disintegrating pot.

Firm the soil and make a little saucer-like depression around each seedling to catch and hold moisture. Try to set plants no deeper than they were when growing indoors. If, however, they have become "leggier" than you would like, set them a little deeper so they can support themselves without falling over.





Keep transplanted seedlings well watered, making sure you don't uncover the roots or knock them over with too heavy a spray.

Incidentally, you can use this same method if you decide to transplant seedlings indoors because your plants are too crowded, or are coming up all in one spot and not in another.

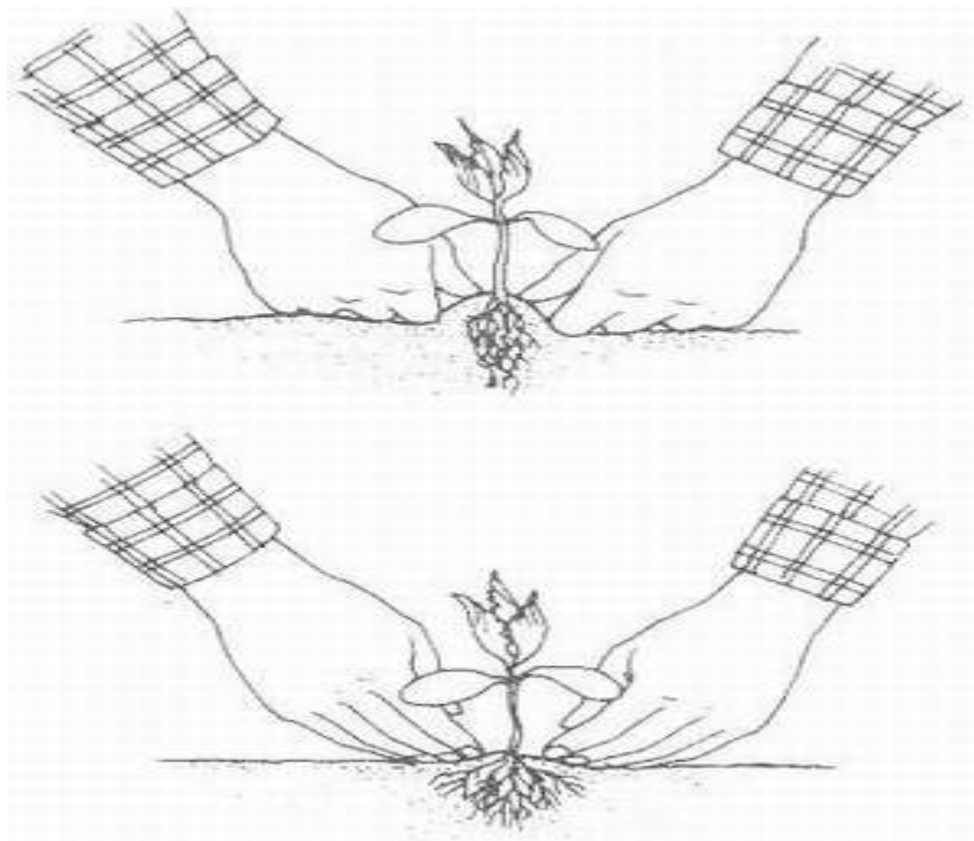
If you're transplanting nursery plants, try to transfer all the planting mixture surrounding the roots to the transplant hole without disturbing the plant. Tap the pot sharply to loosen dirt from the edges, or if the plant is in a plastic compartment, squeeze the compartment gently to dislodge the mass of soil surrounding the roots. This is easier to do if you do not water plants just before you transplant them. If the soil around them is too moist, it's likely to crumble when you try to remove the plant from its container. If it's drier, it will usually stick to the plant roots and come out in one mass.

If soil does fall off the roots, or if the growing mixture hasn't adhered to the roots, spread the roots in the planting hole gently so they're not in one clumped mass. Then carefully firm soil around the plants and water them well.

Larger nursery plants, rootings, or cuttings don't need quite as much protection from the sun after transplanting as do tiny seedlings, but it's best to transplant on a calm, overcast day or late in the afternoon.

Whenever you're moving plants, be sure the transplant hole is good-sized, so you can surround the newly planted herb with plenty of loosened, prepared soil. And work up the soil in the bottom of the hole to give the roots a soft cushion to rest on.

If soil in the transplant hole isn't the right mix, dig a much larger hole—one big enough to hold the root system of the herb when it reaches maturity. Then replace the soil that was in the hole with the proper planting mix.



When transplanting, don't rely on memory to tell you where you put each plant. Many herbs change appearance considerably as they mature, so it's important to label your transplants just as you would seeds, at least until you've been growing herbs for so many years that you're thoroughly familiar with all stages of their development.

Watering tips

You'll want, of course, to give special attention to the watering of seedlings, nursery plants, cuttings, or root divisions just after you've transplanted them. But there are other general watering tips to bear in mind.

When planning your garden, group herbs that require lots of water in one spot so that they can be sprinkled or soaked at the same time. The herbs that require less moisture should be clustered together to avoid over watering them when you're tending the rest of your garden.

Herbs like thorough and deep waterings, rather than frequent shallow ones which don't penetrate to the bottom of the root ball.

Mulching

You can cut down on watering if you spread 1 or 2 inches of mulch around your herbs, tapering off to about 1/2 inch near the stems.

Ever since Ruth Stout advocated heavy mulching in her book, *How to Have a Green Thumb Without an Aching Back*, mulching has been regarded as a new phenomenon. Actually, it is a

natural process, millions of years old. As leaves fall to the forest floor, they protect smaller plants during severe weather, and as they decompose, they form soil-enriching compost.

Whether it occurs naturally or through the efforts of a conscientious gardener, mulching accomplishes many things. It conserves water by cutting down on evaporation, and it helps keep plant leaves clean when there are heavy rains. This is particularly important in the case of creeping thyme, parsley, oregano, anise, and other herbs that grow close to the ground and are often blown over in heavy storms and pushed into the soil.

Mulching also eliminates weeds and preserves delicate herb feeder roots that would otherwise be destroyed by hoeing or digging. The few weeds that creep through the mulch can be pulled out easily by hand.

Mulching also helps guard against extreme weather by insulating herbal roots from the cold. If the mulch is organic, it gradually decomposes into the earth's top layer, boosting soil fertility by providing helpful microorganisms.

Perennials growing in severe climates benefit from heavier mulching at the end of the growing season, which protects them from extreme cold winter temperatures and keeps their root systems from drying out.

Popular mulches for the herb garden include freshly cut grass, chopped hay or straw, chopped seaweed, cocoa hulls, wood chips, and pine needles. (Grass should be piled on in many thin layers, rather than all at once, to prevent rotting, which attracts insects.) Most gardeners have favorite mulches, depending on personal preference and availability. One caution: If you're mulching heavily for a long period of time, check the pH factor occasionally. Some mulches cause soil acidity—a "no-no" for most herbs. You can adjust for this by adding minerals to deacidify the soil.

Fertilizing herbs

Generally speaking, herbs don't need much fertilizing—they draw their nutrients from the soil they're planted in. Too much fertilizer can cause excess leaf growth, resulting in smaller concentrations of the flavorful essential oils that distinguish herbs.

Commercial herb growers rely on one small dose of fertilizer for seedlings—usually fish emulsion or liquid seaweed. One grower finds that using skim milk instead of water promotes healthy growth in young seedlings.

Most herbs can do without fertilizer if they are mulched with organic matter and if compost is added to the soil periodically. Indoor plants, which don't benefit from these natural fertilizers, thrive with an application of very weak fish emulsion about once every 2 weeks during watering.

Combating pests and diseases

Most herbs are naturally resistant to insects, so much so that they are often companion-planted with vegetables and flowers in order to repel harmful pests. The closer the herb variety is to its original type, the better it withstands insect attacks or disease.

Aphids sometimes attack chamomile and dill, but not excessively. Basil is occasionally stripped of its leaves by Japanese beetles. Generally speaking, though, plant pests tend to shy away from the aromatic herbs.

If pests do become a problem, you should avoid chemical pesticides especially since you will be ingesting the teas made from the leaves, roots, flowers, or seeds.

Insects can be eliminated by hand-picking them off plants. Or you can spray your herbs with an insecticidal soap. Approved for use on food plants by the U. S. Environmental Protection Agency, for example, insecticidal soap is completely biodegradable, leaves no harmful residues and can be applied up to the day of harvest. It is made from naturally occurring fats and oils found in the cells of all living things. When sprayed on infested plants, it eradicates from 86 to 100 percent of the most destructive garden pests, but does not harm beneficial insects such as bees and ladybugs. It has a pleasant smell and actually cleans the plants' leaves.

Propagating herbs

Herbs may be propagated in many ways-by seeds, stem cuttings, root cuttings, layering, mound layering, root division, and runners. Different herb varieties are more easily propagated by one method than by another.

Seed propagation

Many herbs, including annual, biennial, and perennial varieties, can be reproduced easily from seeds (sources for seeds and plants are listed at the back of this book). If you have patience and a willingness to work, seeds are by far the most economical way to develop your herbal tea garden. A packet of seeds, usually enough for up to 100 plants, costs little.

As I explained earlier in this chapter, seeds can be planted directly outdoors, or indoors in flats or pots for permanent transplanting to the garden once the danger of frost has passed.

If you're gathering your own seeds from plants you or friends have grown, snip off the seed heads into a paper bag. If the seeds are dry and fine, shake them from their pods and plant them immediately; or store them in a clean, dry place, wait a few days or months, and plant them so they'll emerge at a time you would prefer.

A few herb seeds-sarsaparilla, for example-should be planted immediately upon ripening in order to achieve maximum germination. However, because this plant is much easier to propagate by root cuttings, most gardeners don't bother with seeds. Some herbs are difficult to cultivate from seeds, but self-sow readily. It is easier to transplant the seedlings from these herbs in spring or fall. (There is more detail on individual herbs in chapter 7)

Lavender, lemon thyme, tarragon, and most mints can be grown from seeds but seldom are, because other propagation methods are easier.

Stem cuttings

Rosemary, oregano, winter savory, lemon verbena, hyssop, lavender, the thymes, and scented geraniums are usually propagated by stem cuttings, because seed propagation of these varieties is painstaking and uncertain.

To reproduce by cuttings, cut off 3- to 6-inch plant tips from healthy, well-established plants during the active growing season. Don't take soft or forced growth, weak shoots from the center of the plant, or vigorous growth from thick stems. The ideal cutting stem will snap when bent sharply, rather than bending without breaking.

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