

Organic Cultivation of Medicinal Herbs

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The use of herbal remedies is currently undergoing a renaissance in the United States. Unlike the vast majority of the world, where the medicinal use of plants has been widespread uninterrupted for centuries, if not millennia, in the U.S. herbal medicine had been kept alive for the last century by a small group of dedicated people. In recent years we have seen this tide beginning to turn, with roughly two-thirds of Americans now reporting to have used some kind of natural supplement.

This shift is overwhelmingly positive. Herbal medicines, combined with healthy diet and lifestyle, can often be as effective as pharmaceuticals, in some cases more so, and with fewer side effects. Many more MD's and other health care providers, as well as members of the public, are open minded to the use of natural and alternative therapies than just a few short years ago.

For the home gardener, the cultivation of medicinal plants can add biological and aesthetic diversity to the garden, as well as providing herbs for home use. For the small-scale grower, the cultivation of medicinal plants represents a market just waiting to be tapped into. There is currently in the U.S. more demand for herbs than there is domestic supply, and a large percentage of herbal medicines used here are imported. Of course some medicinal plants are tropical and could not be grown locally (although Hawaii and Florida are increasingly growing these crops), but the overwhelming majority of medicinal herbs used in the U.S. can be grown here successfully. Many Chinese herbs, for instance, grow quite well in the northeastern United States.

Perhaps the major current problem facing the herbal medicine products industry, and the people buying those products, is the wide range in quality, and therefore efficacy, of the products on the market. The most looming potential problem, one could argue, is the desire of some in the medical and regulatory establishment to "regulate" herbs out of existence by unjustifiably arguing that they should be regulated like pharmaceuticals. But that subject could fill an entire article in and of itself – for our purposes we'll stick to growing.

Many herbal products sold in the U.S. are from large-scale commercial farms, of poor quality, and grown under chemical intensive methods. Herbs from such sources tend to make poor medicine. Those of us familiar with good quality produce will not be surprised by this. After all, these are plants, and what makes a garden or farm fresh organic tomato superior in both taste and nutrient content to a run-of-the-mill supermarket tomato holds true for medicinal herbs as well.

Ginseng provides an excellent example of this. By now we have probably all seen the small vials of Chinese or Korean ginseng (*Panax ginseng*) being sold in mini-marts and

gas stations. Needless to say, this ginseng is “cheap”, in both senses of the word. Such ginseng is grown in open field cultivation under shade cloth, and tends to require high amounts of chemicals, particularly fungicides. This is because ginseng grown out of its natural environment is highly prone to fungal disease. This is as true for domestically grown ginseng as it is for imported ginseng, although the imported roots (as well as other herbs) could have been grown with chemicals that have been banned in the U.S., or further fumigated before allowed entry into the country.

Just as in the realm of vegetables, there is no way the small-scale grower can compete in the market with such products. The key is in producing high quality, preferably organic crops, and tap into the growing pool of consumers knowledgeable enough to be looking for it. In the case of American ginseng (*Panax quinquefolius*, similar in activity to the Asian ginseng), it is not difficult to grow organically when in its natural habitat: well drained shady, predominantly north-facing slopes under mature hardwood forest. Such organic woods-grown ginseng sells for up to \$100 per pound dried, making it a viable crop for the small-scale grower.

By growing herbs such as ginseng in our woodlots, we are not only producing high quality medicine for those who need it. We are not only providing income for small-scale growers. We are also repopulating the woods with a local, native plant that has been over-harvested for centuries, to the point where its survival in the wild is now threatened, while at the same time taking pressure off the wild ginseng by providing an alternative for those wanting to consume it. (See the Resource list at the end of this article for United Plant Savers, an organization dedicated to promoting the cultivation of endangered native medicinal plants).

Ever since the earliest colonial times people have been harvesting ginseng for export to Asia, where wild plants are now all but gone, and it is only recently with the rise in traditional Chinese medicine in the U.S., that we are beginning to use it here in large amounts. In my copy of the American Dispensatory of 1827, Dr. John Redman Coxe writes that

The Chinese, probably on account of its scarcity, have a very extraordinary opinion of the virtue of this root, so that it sells for many times its weight in silver. The Americans, on the contrary disregard it, because it is found plentifully in their woods.

What a lesson Coxe send us from 175 years ago – that so often we search out the exotic and expensive, ignoring what is commonplace until it is almost gone! In the case of herbal medicine, it is true that some of the most common weeds make wonderful medicine (more on that later).

Before thinking about growing herbs, there are a few pieces of general information that are important to keep in mind. A good place to begin is with the term “herb” itself.

In general when people refer to herbs they are using the folk definition of the word, which roughly corresponds to the definition in the Merriam-Webster's Collegiate dictionary:

a plant or plant part valued for its medicinal, savory, or aromatic qualities.

However, it is important to realize that this definition has no botanical basis. The primary definition of herb, and that used by botanists, is an annual, biennial, or perennial plant

that does not develop persistent woody tissue but dies down at the end of a growing season.

Thus lettuce, corn, and beets are herbs, botanically speaking, as much as St. Johnswort or Echinacea. When we speak of "medicinal herbs" what we really mean is medicinal *plants*, some of which are botanically herbs, and others, such as oak or hawthorn, both of which are trees, are not botanically herbs at all. Some "herbs", such as medicinal mushrooms – Shiitake, Reishi – belong to the Fungi Kingdom and thus are not even plants at all. This of course shouldn't keep us from using the word "herb" in its folk sense – I do all the time as you can see from the number of times I've used it in this article – but it is important to keep in mind in order to avoid confusion.

The other reason this is important is its implications for us as growers. The diversity of medicinal plants, even when limited to those that will grow in our area, is enormous. Along with that, the growing methods for these plants are equally diverse. Of course this is true for food crops as well, but the truth is that for the most part the common food crops tend to be field crops, and they all tend to do well in a well-drained nutrient rich soil with high organic matter content. If we build up a good soil with prodigious amounts of compost and a balanced amount of mineral rich rock powders, most food crops will do quite well. In the case of medicinal plants, investigating the needs and growing habits of each medicinal plant is crucial. These needs can range from full sun to full shade, from a highly fertile soil to a low nitrogen environment, from well-drained soil (even dry conditions) to outright sogginess. Some are propagated by seed (direct seeded or transplants), others by cuttings, still others by rootstock. Furthermore, some medicinal plants are annuals that can be grown in crop rotations with vegetable crops, some are biennials, and some are long-lived perennials such as ginseng, which can live for over one hundred years. Others are shrubs, vines, or trees.

This diversity in medicinal plants makes it impossible for this article to be anything but an introduction to their cultivation. At the end of the article I list some resources for you to turn to in order to get more specific growing information. Of course finding someone to talk to firsthand who has experience growing the plant you're interested in can be the absolute best source of information.

What I am hoping this article provides you with are both some of the reasons to consider growing medicinal herbs, as well as some general things to keep in mind once you've decided to give it a try:

1. Take a look at what is already on your land – You may very well have a good crop of medicinal plants already growing on your land! Some commonly found plants in our area that have a market include poke (*Phytolacca americana*), dandelion (*Taraxacum officinale*), violet (*Viola sororia* subsp. *papillonaciae*), and black walnut (*Juglans nigra*).

2. Classify the micro-ecosystems on your property. Again, some medicinal plants grow in habitats no typical garden plant would. What medicinal plants to add to your good garden soil will be the easy part; first take a look at all parts of your property with “a new eye”. Some of the weedier species such as mullein (*Verbascum thapsus*) will grow just about anywhere. Other, such as astragalus (*Astragalus membranaceus*), are actually more medicinally active when grown in a low nitrogen soil (being a member of the Fabaceae or bean family, it fixes its own nitrogen from the air). This may allow you to make use of parts of your property you have until now considered unproductive, and without disturbing the ecosystem naturally present. Here are just a few examples:

Under mixed hardwood forest we already mentioned American ginseng as a potential crop, but others to consider include goldenseal (*Hydrastis canadensis*), black cohosh (*Actaea racemosa*, formerly *Cimicifuga racemosa*), stoneroot or horsemint (*Collinsonia canadensis*), and wild yam (*Dioscorea villosa*). The last three listed are fairly common in our region. You may already have some of these present on your land, which of course is a good indication that they would thrive as a crop in that location.

Under coniferous forest, such as pine or hemlock, consider partridgeberry (*Mitchella repens*). Shiitake mushrooms will also do quite well in the additional shade and moisture provided by the cover of conifers (although the mushrooms themselves are grown on hardwood logs, preferably oak).

Perpetually soggy ground can be a good place to grow scullcap (*Scutellaria laterifolia*) or willow (*Salix nigra*).

Steep parts of the property that are inappropriate for cultivation can be perfect places for planting medicinal trees. In fact, by doing so we can help to control erosion and therefore reap a double benefit. We have already mentioned several medicinal trees such as hawthorn (*Crataegus* spp.) or black walnut (*Juglans nigra*), but there are many others, including several that are widely planted as ornamental trees, including linden (*Tilia europea*), ginkgo (*Ginkgo biloba*), and horsechestnut (*Aesculus hippocastanum*).

And of course there are plenty of medicinal plants that do quite well in typical garden or farm soil as well (by typical I mean typical *well-cared for* soil).

3. Choose the right variety. Some of you may be wondering, how do I know what variety to choose when growing a plant for its medicinal uses? This is a critical question, with a fairly simple answer: when growing a plant for medicine, *always choose a non-hybridized, and as much as possible, non-domesticated variety*. In other words, don't choose a variety at all but rather the closest to the original wild prototype as possible. This is as heirloom as it gets, folks!

For example, when growing lemon balm (*Melissa officinalis*), don't choose one of those fancy variegated varieties. When we purposely breed a plant to alter its flavor or its appearance, we are effectively changing the chemical composition of that plant as expressed in these attributes. This is a wonderful thing in the case of fruits and vegetables, but we want to avoid it in the case of medicines since we may very well be unintentionally changing its chemical composition in other, more subtle ways at the same time. To continue with the example of a variegated lemon balm, it would certainly be fine to enjoy this as a home made tea. But if what you are interested in is maximizing its medicinal effects, and absolutely if you plan to grow it for market, plain old original lemon balm is what you want.

Of course, as in the case of vegetables, a subspecies or type that is endemic to your area or has been grown for several generations in your region will most likely do better than plants grown from seed or rootstock from a different climate. Some people, for instance, claim that New Jersey's wild ginseng is subtly distinct from ginseng from other regions. To get started this may not always be possible to find; for instance, there is far too little ginseng left in the wild in New Jersey to ever justify disturbing it. But fear not: just like many vegetables, most medicinal plants are adaptable this way and will do just fine, so long as they are appropriate for your zone.

A few more final things to keep in mind regarding variety:

- Don't fall for companies' pitches of varieties that are higher in "active constituents" than other varieties. The whole concept of standardization in herbal medicines, in which consistent levels of "active ingredients" are guaranteed, has been shown to be more hype than substance. For instance, in the case of Saint Johnswort, the market is full of products standardized to hypericin content, despite the fact that the overwhelming evidence is that hypericin is not the active ingredient at all. In fact, the whole concept of "active ingredient" when it comes to medicinal plants is suspect, and is often merely the excuse by which companies can patent otherwise unpatentable plants and thus increase their profit margin.
- Beware of genetically modified organisms (GMO's). Although I am not aware of any genetically modified medicinal plants currently available, a few are under development and should be 100% avoided (there is no space here to delve into the myriad reasons why).
- Always cross reference with the Latin binomial names of the plants. English or common names can't be trusted! (I can't tell you how many "snakeroots" there are!)

4. Take care with invasive plants. Some medicinal plants can be quite invasive. This makes them easy to grow, but we don't want to contribute to plants, particularly non-native plants, "escaping" from our gardens or farms to take over the neighborhood, and eventually the region. All invasive plants such as kudzu (which has some wonderful medicinal uses by the way) started with someone simply planting some. The phrase "it seemed like a good idea at the time" comes to mind. Some plants can be invasive if allowed to go to seed, such as motherwort (*Leonurus cardiaca*); others spread by rhizome,

such as woad (*Isatis tinctoria*). Others will naturalize in your garden but at a controllable rate, such as fennel.

5. Consider secondary benefits of growing medicinal plants. Many medicinal plants carry added benefits to your garden or farm. A couple of these are:

- Aesthetic value – many medicinal plants have attractive foliage, and many more have beautiful flowers. A typical flower garden often contains many medicinal plants, even if the gardener doesn't know it! These include well known herbs such as purple coneflower (*Echinacea purpurea*), as well as others such as balloonflower (*Platycodon grandiflora*), a widely used expectorant and lung remedy in Asia.
- Attractive to beneficial insects – Most insect problems can be prevented entirely by a well-balanced insect population. Even if you introduce beneficial insects to your land, they won't stay long if you don't provide them with the habitat they prefer. I have found that many of the medicinal plants I grow are wonderful at attracting beneficials, and every garden or farm would benefit by planting them in patches or intermittent rows. Almost any plant in either the Lamiaceae or Apiaceae families will do a good job. Some examples include lemon balm or holy basil (*Ocimum sanctum*) in the Lamiaceae family, and fennel (*Foeniculum vulgare*) or lovage (*Levisticum officinale*) in the Apiaceae family. This past season for the first time I grew figwort (*Scrophularia nodosa*), in the Scrophulariaceae family, and found it to be the *absolutely best bee plant I have ever seen*. It has an extremely long flowering season; parts of the plant are producing seed while other parts are just coming into flower, and my figwort beds were literally buzzing with a wide variety of wild native bees all summer long.

6. Correct harvesting. The market is full of herbs that are low quality because they have been harvested improperly. The main things to keep in mind are:

- part of the plant that is used – Depending on the particular plant, the part to be harvested can be the seed, the fruit, the leaf, the flower, the root, or a combination thereof. Of course this is equally true of vegetables, but because we are more familiar with them we usually don't have to think much about this. When we say tomato, there's no doubt that we are talking about the fruit, but when we say Saint Johnswort for example, we need to learn that we are talking about the flower or the unopened flower buds. Or when we are talking about echinacea, that we mean the root and/or the flower head. Using the wrong part can result in everything from a weak and diluted product as in the case of products made from the whole plant of echinacea or St. Johnswort, to a potentially dangerous one. This again will be familiar with vegetable growers, who know that the tomato leaf is toxic while the fruit is not, or that the potato fruit is toxic while the tuber is not.
- correct timing – Medicinal plants need to be harvested when the medicinally active part is at its peak. Again, this is no different from knowing to harvest lettuce before it begins to bolt. As a general rule (bearing in mind that there are always exceptions):
 - Leaves* are generally harvested in the late spring/early summer, before the plant begins to flower.
 - Roots* are harvested while the plant is dormant. This will generally be in the late fall, or possibly early spring. Some perennials need to grow for several years

before they are ready to harvest (Echinacea for two-three years, goldenseal for three years, ginseng for seven, etc.)

Fruit, flower, and seed are fairly self-explanatory – when these parts are vibrant and at their peak.

- fresh vs. dry – Most medicinal plants can be dried and used as tea or made into tinctures (alcohol based fluid extracts). Some, however, are only active one way or the other. Those crops that are only active fresh, such as echinacea, need to be tinctured at home or sold to tincture companies immediately upon harvest. Of course this market would have to be lined up in advance.

Further Resources

Books:

Sturdivant, Lee, and Tim Blakley,

Medicinal Herbs in the Garden, Field, and Marketplace

Cech, Richo,

Horizon Herbs Growing Guides (available from Horizon Herbs below)

Miller, Richard Alan,

The Potential of Herbs as a Cash Crop

DeBaggio, Thomas,

Growing Herbs from Seed, Cutting, and Root

Rosemary Gladstar (editor),

Planting the Future

Seed sources:

- Horizon Herbs, great selection and growing information
PO Box 69
Williams, OR 97544
(541) 846-6704
- Elixer Farm Botanicals, mainly Chinese herbs
(417) 261-2393
- Fedco Seeds
PO Box 520
Waterville, ME 04903
(207) 873-6411
- Richter Herbs, large selection, good if you're looking for something obscure
(905) 640-6677

Organizations:

United Plant Savers

PO Box 9, East Barre VT 05649

www.plantsavers.org