

# Growing Forest Botanicals and Medicinals

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yungshu chao, gettyimages.com

Ginseng (*Panax quinquefolium*) Liquid Extract

## Introduction

People have harvested and processed forest plants for medicinal purposes since the beginning of recorded history. One of the great dangers of losing the Amazon rainforest is that we may lose highly valuable medicinal plants; there's no telling what has already been destroyed. Annual sales of medicinal and other economically useful forest plants are now about \$60 billion worldwide.

The temperate forests of Kentucky are known for their hardwood timber. In addition, there are herbaceous plants and shrubs as well as trees that can be used for:

- Medicinal purposes (ginseng [*Panax quinquefolium*], golden-seal [*Hydrastis canadensis*])
- Dyes (black walnut [*Juglans nigra*], yellowroot [*Xanthorhiza simplicissima*])
- Food (ramps or wild leek [*Allium tricoccum*])
- Flavorings or teas (sassafras [*Sassafras albidum*], mints [*Mentha* spp.], wintergreen [*Gaultheria procumbens*, *Betula lenta*, *B. alleghaniensis*])

Ginseng is perhaps the best known of our medicinal plants, and it is easily the most commercially valuable. However, if you read health supplement labels in

the big box stores or in other similar locations, you will find listed:

- Goldenseal
- Blue cohosh (*Caulophyllum thalictroides*)
- Black cohosh (*Actaea racemosa*)
- Bloodroot (*Sanguinaria canadensis*)
- Wild ginger (*Asarum canadense*)
- Slippery elm (*Ulmus rubra*)
- Witch-hazel (*Hamamelis virginiana*)
- Mayapple (*Podophyllum peltatum*)

## Black cohosh (*Actaea racemosa*)



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## Witch-hazel (*Hamamelis virginiana*)





goldenseal (*Hydrastis canadensis*)



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Interest in ginseng and goldenseal has encouraged their cultivation, and information on how to grow them successfully is available. Other species have largely been harvested in their wild state, but increased interest in them for their medicinal benefits may make it necessary to develop appropriate cultivation techniques for them also.

## Starting out

If you are interested in producing some of Kentucky's native medicinal plants, the first step is to gather as much information about them as possible. Several books, contacts, and organizations are listed at the end of this publication.

First, ask yourself:

- Why do I want to grow forest botanicals and medicinal herbs?
- What is my proposed target market (home, local business, large company)?
- What species do I want to grow?
- What parts of that species are marketable (seed, root, leaf, flower, bark)?
- Do I want to produce only the raw material or make value-added products from them?
- Do I want to produce these plants organically?

Do some homework first. Take the time to walk through your forest, especially in the springtime, and identify what plants are growing on the ground and in the shrub layer. Take soil samples to identify soil types and pH. The pH level, one of the pieces of information you will get from the soil analysis, should be 6 to 7 for many of the common medicinal plants. See your county extension office for help, both with the correct technique for sampling soil and with the interpretation of the resulting analysis.

Scouting your woodland will help you decide what grows best among your forest trees and whether you want to grow them as *wild-simulated* or *forest farmed* (also called *woods-cultivated*). Many medicinals grow together in the same area, so if you see a goldenseal plant, you may well see ginseng, mayapple, or wild ginger. Because many of them can grow in a neighborly fashion in the wild, you can also produce them in a diverse group rather than forming mini-monocultures of a single type of plant. Diversification would make your production system more sustainable, as well as guard against insect and disease problems for any individual species.

If in your scouting expeditions you locate some sizable patches of one of these plants and think you could start out by simply harvesting what you already have in its wild state, *make certain that you never remove more than 30 percent of what is growing in a given location*. The residual patch will continue to grow and produce more of your target product in the future. Careful and conservative wild harvesting of an existing plant population could be the starting point for your medicinal plant or forest botanical forest farming operation.

Do your homework and find out everything you can about your target species. Answer the following questions:

- What does it look like?
- How does it grow?
- How does it reproduce (seed, root sprout, layering)?
- Where does it grow?
- What other plants grow with it or near it?
- When does it flower?

**Bloodroot** (*Sanguinaria canadensis*)



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- When does it set fruit?
- What part (or parts) of the plant contains medicinally active ingredient (root, leaf, seed, flower, bark)?
- What kind of soil is best for it?
- How much shade does it need?
- How long will it take to grow a marketable product?

Find workshops, seminars, and resource materials through your county extension office, your public library, and on the Internet, and connect with herb-growing groups so you can visit and talk with people who are already producing medicinal herbs for market.

## Ginseng products



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### General characteristics

Many medicinal plants will likely be found on north- or east-facing slopes, where the microclimate is cooler and moister. They like shade—often close to 90 percent—and moist but well-drained areas with ample organic matter. They will be less successful in heavy clay or sandy soils. They are usually found in greater abundance on the

mid-slope or base of a slope than on hilltops or ridges. Some of them like to be near certain tree species, as those associations are beneficial to them—they will always do better close to trees that have deep roots or taproots rather than those with shallow roots. (Shallow-rooted tree or shrub species would probably compete more with these herbaceous plants for water and

nutrients.) Ginseng, for example, grows well under dense shade from tree species such as tulip-poplar or black walnut. It also requires calcium and does well near or under sugar maple trees, which can supply calcium.

Many medicinal plants are perennials and will continue to appear on an annual basis if parts of the roots are left behind when harvesting or when, as with ginseng, the fruits or berries are scattered in the area when the rest of the plant is harvested. Many of them also produce their valuable part or parts each year, although goldenseal, one of the more valuable species, takes three to four years to develop a marketable fibrous root system. For a reliable annual harvest, however, it is wise to replant or re-sow your target plants every year.

### Production—organic or not?

Medicinal plants can be wild-harvested from the forest or produced intentionally by forest “farming”—creating raised beds under the forest canopy for the plants to grow in humus and leaf litter from the forest floor—or by wild-simulation—“sowing” rootlets or seed of your proposed product with minimal disturbance of the forest floor. This sowing is done more or less randomly into locations in your forest where your target plants are most likely to grow naturally.

The term wild-simulated is most often heard about ginseng. Ginseng, which has a taproot, takes many years (7 to 10) to develop a root size that is marketable. Wild ginseng is the most valuable form of this plant, bringing \$300 or more per pound of dried root.



Ginseng can be and is grown like any other shade-grown crop, under shade cloth in raised beds, but the ginseng that comes from that kind of production is worth only \$20 to \$50 per pound. Wild ginseng has its greatest value when it has been grown undisturbed for 10 or more years; wild-simulated is almost impossible to distinguish from wild and takes almost as long. Commercially produced ginseng can form marketable roots in 3 to 5 years but for a far smaller economic return. The Asian market, still the largest buyer of American ginseng, prefers wild-harvested ginseng, followed by wild-simulated and forest farmed.

While you are considering which of these production methods (or combination) you want to use, consider also whether or not you want to grow your medicinal plants organically. If so, you need to follow the requirements for organic certification established by the US Department of Agriculture. (Contact your local extension office or organic farming organizations for details, or check the web [[www.ams.usda.gov/nop](http://www.ams.usda.gov/nop)].)

Medicinals grown *organically* are better protected against contamination and insect or disease problems. The value-added products you might make from them can demand premium prices in relation to the same products that have not been grown organically. One success story is a Georgia farmer who has developed a wide range of products using organic goldenseal and has also established a cooperative of growers for the production of organic goldenseal. He is able to increase his profits by not only offering seed and roots for planting to his collaborators but also by producing lotions, creams and soaps containing the active ingredient of this valuable plant.

Ginseng's monetary value is very attractive to prospective growers, but the perennial problem with ginseng production is that the crop is often poached before the owner can get it dug for market. Since several of the other species can produce a reasonable value in a shorter period of time—several of them on an annual basis—it makes more sense to consider some of the more modestly valuable species to cultivate.

### Next steps

The second step after identifying what is growing naturally in the woods is to find out what the market is for the plant or plants you want to grow. Determine the value of the proposed crop, as some are worth more than others, and if you are planning to farm these plants, you should choose plants that will provide a reasonable return on investment.

Once you have done some research and communicated with individuals or groups that are already growing and marketing medicinal forest plants, **draw up a business plan** for what you plan to do. Make sure you have realistic figures for costs of inputs and reasonable expectations for a return on your investment.

Your response to the question about your target market—home-based, local business or large company—will determine the scale of your plant production. If you plan to supply your own needs (for a homemade, value-added product such as a salve, for example) or a local business, a few pounds of your product may be enough. If you want to work with the larger regional or national companies, they will probably require tens of pounds to hundreds of pounds of product, which would involve

much greater demands on your time and resources. Interacting with people already involved in the herb or medicinal plant business will help you determine the scale that is appropriate for your individual situation.

### Preparation for market

Medicinal plants can be grown for raw products such as the roots, stems, bark or leaves (or combinations of these from the same kind of plant). Some can be marketed fresh, but most are sold dried. Most roots, except ginseng, can be dried in the sun in thin layers on screening or other surface that allows air circulation. All medicinals can be dried successfully in a barn loft or attic, which are likely to be both hot and dry. Plant materials should be checked (and roots turned over) once a day in the beginning to make certain they are not rotting, becoming moldy, or over-drying. Barks should be dried indoors, and herbs should be dried either indoors or in the shade rather than in full sun. Many medicinal plant parts will be bulky and need proper storage and packaging. Check with buyers for specific preparation directions.

Getting your product to market will involve shipping costs, which reduce your profit margin. Adding value or product packaging, such as making tinctures, lotions, steam distilled aromatic oils, and soaps or creams may bring you higher prices and greater profit margins.

### Summary

As with any new venture, start small and see how production of this crop fits with other activities as far as your time, energy and money are concerned. There are established markets for these plants, although not as obvious

## Slippery elm (*Ulmus rubra*)



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as markets for corn, soybean or cattle. Some national organizations purchase medicinal plants, as well as local brokers scattered all over Kentucky and the entire Appalachian region. Since these crops are new and different, the grower will need to find out when and how to harvest the various useful parts of the plants. Most of them will need at least minimal processing—drying, for example—and will need to be packed and shipped according to particular specifications. (**Note:** Contact buyers before harvesting to see what you need to do to create a marketable product from the raw material that you plan to harvest and to optimize your return on investment.)

## Reference materials on herbaceous medicinal plants

### Books and Magazines

- Bedner, Lisa. 1995. *The Simple Book of Herbs*. Pipsissewa Press. Bloomington Spring, TN.
- Epler, John W., Jr. 1996. *All About Saleable Medicinals*. Cornhusker Press. Hastings, NE.
- Foster, Steven. 1995. *Forest Pharmacy: Medicinal Plants in American Forests*. Forest History Society, Durham, NC.
- Foster, Steven. 1998. *An Illustrated Guide: 101 Medicinal Herbs*. Interweave Press. Loveland, CO.
- Harding, A.R. 1972. *Ginseng and Other Medicinal Plants*. A.R. Harding, Columbus, OH.
- The Herb Companion - <http://www.herbcompanion.com/>. Ogden Publications, Inc., 1503 SW 42nd St., Topeka, KS 66609-1265.
- The Herb Quarterly - <http://www.herbquarterly.com/>. Chris Slaughter. Phone: 510-668-0268. Fax: 510-668-0280. [cslaughter@egw.com](mailto:cslaughter@egw.com).
- Herbrandson, Dee. 1994. *Shaker Herbs and Their Medicinal Uses* (seventh edition). Shaker Heritage Society, Albany, NY.
- Morales, Mario R. (Editor). 2011. *Herbs for Common Illnesses*. Mountain State University, Beckley, WV. (order from Medicinal Botanicals Program, Mountain State University, 410 Neville Street, Beckley, WV 25801-4511).
- Persons, W. Scott and Davis, Jeanine M. 2005. *Growing and Marketing Ginseng, Goldenseal & Other Woodland Medicinals*. Bright Mountain Books, Inc., Fairview, NC.
- Reppert, Bertha. 1994. *Growing Your Herb Business*. Storey Publishing LLC.
- Sturdivant, Lee, and Tim Blakley. 1999. *Medicinal Herbs in Garden, Field and Marketplace (a Bootstrap Guide)*. San Juan Naturals, P.O. Box 642, Friday Harbor, WA 98250.

### Internet references

- Appalachian Ginseng Foundation - [www.a-spi.org/AGF](http://www.a-spi.org/AGF): Appalachia—Science in the Public Interest, 50 Lair Street, Mt. Vernon, KY 40456-9806. Phone: 606-256-0077.
- The Business of Herbs - <http://www.herbworld.com/businessofherbs.htm>.
- Davis, J.M., 2007. Websites with forest botanical herb production and marketing information: [ncspecialtycrops.org](http://ncspecialtycrops.org) and [nherb.org](http://nherb.org). Dr. Jeanine Davis, North Carolina State University, Mountain Horticultural Crops Research and Extension Center, 455 Research Drive, Fletcher, NC 28732. [Jeanine\\_Davis@ncsu.edu](mailto:Jeanine_Davis@ncsu.edu).
- National Appropriate Technology Assistance Service - <http://www.ncat.org/>. NCAT, P.O. Box 3838, Butte, MT 59702. Phone: 406-494-4572 or 1-800-ASK-NCAT. [www.attra.org](http://www.attra.org).
- Rural Action - <http://www.ruralaction.org/forestry.html>. Plant summaries on goldenseal, ginseng, black cohosh, false unicorn, bloodroot, stoneroot, ramps.

### Organizations

- American Herb Association - <http://www.ahaherb.com/>. P.O. Box 1673, Nevada City, CA 95959. Phone: 530-265-9552.
- American Herbal Products Association (AHPA) - <http://www.ahpa.org/>. American Herbal Products Association, 8630 Fenton Street, Suite 918, Silver Spring, MD 20910. Phone: 301-588-1171.



The Ginseng Research Institute of America - <http://www.guidestar.org/organizations/39-1637537/ginseng-research-institute-america.aspx>. Ginseng Research Institute of America, Inc., Wausau, WI 54401.

Herb Growing and Marketing Network - [www.herbworld.com](http://www.herbworld.com), [www.herbnet.com](http://www.herbnet.com). P.O. Box 245, Silver Spring, PA 17575-0245. Phone: 717-393-3295.

Herb Research Foundation - [www.herbs.org](http://www.herbs.org) or <http://www.herbs.org/herbnews/>.

The Herb, Spice, and Medicinal Plant Digest - <http://www.worldcat.org/title/herb-spice-and-medicinal-plant-digest/oclc/049995985>.

HerbalGram - <http://abc.herbalgram.org/site/PageServer>.

Hortideas - <http://users.mikrotec.com/~gwill/hi-index.htm>.

The International Herb Growers and Marketers Association (IHGMA) - <http://iherb.org/>. International Herb Association, P.O. Box 5667, Jacksonville, FL 32247-5667.

New Farm - <http://rodaleinstitute.org/newfarm>. Rodale Institute, 611 Siegfriedale Road, Kutztown, PA 19530-9320. Phone: 610-683-1400, Fax: 610-683-8548.

National College of Naturopathic Medicine - <http://www.ncnm.edu/>. 049SW Porter Street, Portland, OR 97201. Phone: 503-552-1555.

Office of Small Scale Agriculture - <http://sfp.ucdavis.edu/pubs/brochures/mushroom.html>. Small Farm Program, One Shields Ave., Davis, CA 95616-8699.

Roots of Appalachia Growers Association (RAGA) - [www.rootsofappalachia.org](http://www.rootsofappalachia.org). 33560 Beechgrove Road, Rutland, OH 40732.

The Society for Economic Botany - <http://cms.gogrid.econbot.org/SEBHome.html>.

### **Buyers/sellers**

Frontier Natural Products Co-op - <http://www.frontiercoop.com>. 3021 78th Street, P.O. Box 299, Norway, IA 52318.

Mountain Natural Products. - 4562 Chloe Road, Pikeville, KY 41501 or P.O. Box 470, Pikeville, KY 41502. Phone: 606-432-0501 or 606-434-9926.

Smoke Camp Crafts. - [www.manta.com/c/mr5j9t7/smoke-camp-crafts](http://www.manta.com/c/mr5j9t7/smoke-camp-crafts). 1289 Smoke Camp Road, Weston, WV 26452-7940. Phone: 304-269-6416.

Strategic Sourcing, Inc. - Edward J. Fletcher, Botanical Division C.O.O., 115 Snow Ridge Road, Banner Elk, NC 28604. Phone: 828-898-7642.

Walnut Meadows Ginseng Company. - Route 3, Box 186, Bruceton Mills, WV 26525.

**mayapple** (*Podophyllum peltatum*)



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