

# **GROWING AND MARKETING** **Ginseng, Goldenseal** **and other Woodland Medicinals**



**Jeanine Davis and W. Scott Persons**

**REVISED &  
UPDATED**

Praise for *Growing and Marketing Ginseng, Goldenseal and other Woodland Medicinals*

This book is the complete resource for ginseng. I recommend this book to our members and visitors who are interested in learning and growing their own green gold. Thank you for bringing so much helpful and useful information.

—Michael S. Lee, President of WildGrown.com

The definitive guide to growing our shade-loving native medicinal plants for fun and profit. As an ecologist and conservation biologist, I particularly appreciate the fact that woodlot owners can help take some pressure off wild populations through careful cultivation of medicinals on appropriate plots in their forested landscape. By passing on lessons from their vast hard-won experience in this enterprise, Davis and Persons have done a great service.

—James B. McGraw, Eberly Professor of Biology, Department of Biology, West Virginia University

My office is like a shell midden, with the oldest and most decomposed material at the bottom, and more recent and vital material located somewhere near the surface. I am delighted to report that my copy of Davis and Persons' book has always stayed right at the top! wUpgrades to the information found in this book will help maintain this tradition of growing valuable plants close to home, and I believe the plants will join me in thanking the authors for a job well done. May we all go out to the woodlands, drop to our knees in the cool, soft earth, and cultivate, for the love of life, a rare plant.

—Richo Cech, herbal author and gardener at Horizon Herbs, LLC in Williams, Oregon.

The recent popular interest in wild American ginseng spurred by high prices in Asian markets means that now more than ever it's important to create cultivated woods-simulated supplies of American ginseng and other woodland medicinal plants. Scott Persons and Jeannine Davis have combined decades of experience and expertise to create the most significant, must-have reference on growing ginseng, goldenseal, and other woodland medicinal plants. Anyone interested in understanding any aspect of wild American ginseng, it's biology, history, economics, and the practical details of production needs this book.

—Steven Foster, Senior author, *Peterson Field Guide to Medicinal Plants*.

Important revised work on how we can encourage conservation through cultivation of two medicinal and economically important plants that have been on United Plant Savers At-Risk list since UpS created this list.

—Susan Leopold, Executive Director of United Plant Savers.

This work is a plant lover's treasure. What Jeanine and Scott have accomplished with this book will be revealed for years to come, as the layers of wisdom and knowledge are deep. Scientists, herbalists, growers, conservationists, native plant enthusiasts, 'plantophiles' in general will thrill at the research and clear, user-friendly information that is in these pages. You can easily tell that these authors have made this a life long passion and profession

—Kathleen Maier, RH (AHG), Sacred Plant Traditions, LLC

This book is required reading for anyone interested in growing ginseng and other woodland botanicals in a shady site. Persons and Davis have captured the wisdom of a generation of ginseng growers in this comprehensive book, now updated to include practical information for home gardeners who want to enrich a patch of woods with native medicinal plants.

—Barbara Pleasant, award-winning garden writer and contributing editor to *Mother Earth News*

The first edition of this book became an instant classic in the fields of medicinal plant horticulture, sustainable agriculture, and agroforestry. With this latest edition, Scott and Jeanine have remarkably managed to expand, improve and update this classic so that it is now even more useful and full of up-to-date information. Their combined knowledge, experience and wisdom is abundant throughout this book. I heartily recommended this updated edition to anyone interested in native woodland plants and their culture.

—Eric P. Burkhart, PhD., Program Director, Plant Science, Shaver's Creek Environmental Center,  
The Pennsylvania State University

Scott Persons and Jeanine Davis have written the only accurate and comprehensive grower's guide to woodland cultivation of American Ginseng and other forest medicinal and culinary herbs. This new revision of their original book is a significant improvement over the first edition, with updated and expanded information. In addition to being full of practical "how to" data, based on both University peer reviewed research, as well as first-hand knowledge and experience, it is a delightful and easy to read textbook. I consider this book as truly a "must read" for anyone who is seriously interested in pursuing this form of Agroforestry.

—Bob Beyfuss, American Ginseng Specialist, Cornell University Cooperative Extension (retired)

This unique book is a comprehensive guide on the history, production and marketing of medicinal plants native to the forests of eastern North America. Practical experiences are included from both an American and Canadian perspective. It is a valuable, easy to read resource for both the beginner and experienced grower.

—Dr. Sean Westerveld, Ginseng and Medicinal Herbs Specialist,  
Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs

GROWING AND MARKETING  
**Ginseng, Goldenseal**  
and other **Woodland Medicinals**

REVISED AND UPDATED

Jeanine Davis and W. Scott Persons



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## Preface I

When I realized that my old book, *American Ginseng: Green Gold*, was rapidly becoming outdated and that a new book was needed, I thought that many of my potential readers would be interested in practical, detailed information and instruction on growing other valuable native woodland medicinal herbs—other species of green gold—as well as ginseng. I asked Dr. Jeanine Davis to be a co-author and cover the additional material. Dr. Davis and I have interacted professionally for many years. I grow American ginseng and a little goldenseal on wooded hillsides in western North Carolina at the edge of the Great Smoky Mountains. Dr. Davis is a professor at North Carolina State University's Mountain Horticultural Crops Research and Extension Center, where she conducts research on a wide variety of native woodland botanicals. Dr. Davis works only about an hour's drive northeast of me, and we often share information, and sometimes we find ourselves speaking at the same conferences—I on woodland ginseng production and she on the cultivation of goldenseal, ramps, and many other native herbs. Our

approaches to small-scale farming and our advice to prospective growers are similar and compatible.

There is a great deal of material available, both in print and on the Internet that discusses growing woodland botanicals. Some of the information is excellent, but a significant chunk is partial disinformation. It is often not based on sound research—or even on more than one grower's experience—and profitability is not forthrightly assessed. Cultivating native woodland medicinal herbs in a sustainable manner is often advocated primarily as an enjoyable, even noble, activity. Of course, it *is* a noble and enjoyable activity (or it can be), but Dr. Davis and I have a more hard-core point of view: We are interested in using best management practices and in turning a profit.

Many people helped along the way as Dr. Davis and I researched, wrote, and prepared this text for publication. Plant scientists, agriculture extension specialists, herb growers, and herb buyers freely shared their expertise, and many are acknowledged by name within the text. However, we wish

to express special thanks to some of those who are not mentioned by name: Dr. William G. Bailey (deceased), professor and ginseng researcher at Simon Fraser University in British Columbia; Claude Deyton, agricultural technician in Yancey County, North Carolina; Ed Fletcher, chief operating officer of Strategic Sourcing, Inc.; Tony Hayes, president of Ridge Runner Trading Co.; Michael McGuffin, president of the American Herbal Products Association; Al Oliver, ginseng specialist for the British Columbia Ministry of Agriculture and Fisheries (retired); John T. A. Proctor, ginseng researcher in the Department of Horticultural Sciences at Guelph University in Ontario (retired); Jan Schooley, ginseng and medicinal herb specialist with the Ontario Ministry of Agriculture at the Simcoe Research Station (retired); and Robin Suggs, executive director of the Yellow Creek Botanical Institute. We also wish to express our great appreciation to Karen Hardy and

Jackie Greenfield who researched references and helped in many other ways to provide information for the manuscript.

Because we have limited photographic skills, we are indebted to a broad spectrum of friends, colleagues, growers, and even professional photographers for supplying the photographs that illustrate the text. We thank them all here and give credit next to their pictures. Lastly, we are particularly grateful for the generous contributions of two horticultural experts with experience writing about the propagation of woodland herbs. Robert Beyfuss, ginseng grower, researcher, and Cornell cooperative extension agent (retired) for Greene County, New York, reviewed the original manuscript for the ginseng section of the book, suggested needed improvements, and even contributed photographs. Richo Cech of Horizon Herbs reviewed the second section and made suggestions covering all the other native forest botanicals.

— W. Scott Persons, 2005, 2007, 2013



## Preface II

When it came time to update our book for the second time, Scott and I agreed we should make a few changes. Since the book was first published in 2005, I have received hundreds, if not thousands, of requests from home gardeners wanting to grow woodland botanicals. Every year I offer propagation workshops and speak at herb conferences, botanical gardens, and to Master Gardeners about how to grow one's own forest medicine. Many of the people who attend have already purchased our book, and they tell us how much they appreciate it. But we wrote the book for commercial growers, and it definitely has that angle to it. When I speak to home gardeners and hobbyists, I don't talk to them the same way that I speak to commercial growers. So, for this edition of the book, we added a section specifically for the home gardener.

Over the past eight years, smartphones and tablets (the electronic kind) have become ubiquitous. People who did not have reliable or fast Internet connections in 2005 now have instant access. In light of this, we changed some of the reference

sections; now there are fewer snail mail addresses and phone numbers, and more website URLs and email addresses. We still included names and contact information for some of the companies offering plants, seeds, and supplies, but there are many more out there. Just use a search engine to find them, and of course, check out their quality and reliability. Finally, I expanded the table that contained raw material prices to provide a historical perspective on more than 60 forest medicinals bought and sold in North America. I also added sections on wild-harvesting and the federal regulations on dietary supplements that impact growers. And lastly, we have made this book available in ebook format so you can carry it with you wherever you go.

Once again, many people have helped us make this new book a reality. We want to thank Cynthia Bright, our first publisher, for all her help and support in transitioning this book over to a new publisher. This was her last project before she retired from the publishing business. I especially want to thank Bob Beyfuss, Eric Burkhart, Joe-Ann McCoy, Randy Beavers, Ed Fletcher,

Tony Hayes, Jackie Greenfield, and David Cozzo for many stimulating discussions about these fascinating plants. And finally, I want to remember Andy Hankins, extension specialist with Virginia State University. He passed away suddenly in November

2012. Andy was a very special person who dedicated his life to helping others. He knew a great deal about growing ginseng and shared his information freely in publications and presentations for over 25 years.

— Jeanine Davis, 2013





## Author Biographies

JEANINE M. DAVIS was born in Oak Park, Illinois, and has lived in many states east and west of the Mississippi. After acquiring an A.A. degree in Fine Arts, she changed majors and earned a B.S. degree in Horticulture from Delaware Valley College in Doylestown, Pennsylvania. She then moved across the country where she earned her M.S. and Ph.D. degrees in Horticulture from Washington State University. In 1988, she moved back east to join the faculty in the Department of Horticultural Science at North Carolina State University. There she is an associate professor and extension specialist at the Mountain Horticultural Crops Research and Extension Center near Asheville, North Carolina.

Jeanine's research and educational programs are diverse, covering commercial production of vegetables, new crops, medicinal herbs, organics, and most recently, biodynamics. A constant in her program over the past 25 years has been a devotion to the conservation of native medicinal herbs through cultivation. She has published nu-



merous papers, reports, and webpages on research and activities demonstrating that cultivated herbs can provide a more reliable and consistent product for the market than wild-harvested material while at the same time helping to conserve precious native populations. Jeanine participates in numerous professional and non-profit organizations and speaks at conferences and workshops across North America. She also runs a small farm with her family, raising steer, horses, donkeys, chickens, bees, and vegetable and herb gardens.

W. SCOTT PERSONS has successfully grown American ginseng for 34 years. Born in Durham, North Carolina, he graduated from Duke University in 1967 with a B.A. in Philosophy, and then went on to earn M.A. and Ph.D. degrees in Educational Psychology from Emory University. When marriage led him to settle in western North Carolina, Dr. Persons became fascinated with the valuable woodland herb that flourished there on the heavily forested hillsides of his new wife's homestead.

Established in 1979, his woodland ginseng farm has not only supported his family but also supplied planting stock (and often advice and counsel as well) to ginseng farmers all over the country—indeed, all over the world. His first book, *American Ginseng: Green Gold* has helped woods growers from Alberta to Tasmania.

Scott represented American woods growers at the International Ginseng Conference (IGC) in Vancouver in 1994, again at IGC 1999 in Hong Kong, and at IGC 2003



in Melbourne; he also speaks frequently about ginseng at conferences in the United States. As owner/operator of Green Gold Enterprises, Inc. he provides consultative advice on all matters related to forest ginseng farming, and he brokers both domestic and international ginseng root sales. Thus, he has both extensive hands-on growing experience and a broad knowledge of the ginseng trade and the international world of ginseng.



## Abbreviations and Definitions

**CITES:** Convention on International Trade in Endangered Species of Wild Fauna and Flora

**EPA:** United States Environmental Protection Agency

**GAPs:** Good Agricultural Practices

**HRT:** Hormone Replacement Therapy

**SARE:** Sustainable Agriculture Research and Education Program

**SMNPA:** Smoky Mountain Native Plants Association

**USDA:** United States Department of Agriculture

**USFWS:** United States Fish and Wildlife Service

### Definitions

(written in context for this book and in easy-to-understand language):

**Annual:** a plant that completes its life cycle, including producing seed, in one year, and then dies.

**Biennial:** a plant that lives two years. It blooms only in the second year, and then dies.

**Deciduous:** a plant, usually referring to a tree or shrub, that sheds its leaves every year.

**Dormancy (seed):** a period during which a mature seed “waits”, until certain conditions (often a cold period) are met before germinating.

**Dormancy (bud):** a period during which a bud (on a branch or an underground rhizome) cannot open until it has been exposed to a set number of hours below a certain temperature.

**Herbaceous:** a plant with stems and leaves that die down each fall and regrow from a perennial rhizome and/or roots each spring.

**Mycorrhiza:** a symbiotic (mutually beneficial) relationship between a fungus and the roots of a plant.

**Perennial:** a plant that lives for more than two years.

**Scarification:** the method of scratching, nicking, or cracking a seed coat so the seed can take in water and start the germination process.

**Stratification:** a treatment in which seeds are exposed to cold (often moist cold), warmth, or alternating cold/warmth to break dormancy so the seed can germinate.





## General Introduction

In our complex world of cell phones, virtual shopping malls, processed foods, and managed health care, many people desire to simplify their lives and make use of what Nature has provided us. For a rapidly expanding segment of the population, this return to a more natural life includes the use of medicinal herbs. A growing number of us take herbs as a natural source of medicine, while others use them because they are often less expensive than prescription drugs. Some people want control over what they consume, so they gather or grow their own medicines and food. The forests of the United States and Canada provide habitats for many of the most popular medicinal herbs. These plants have a special mystique that spans cultures and generations.

For some time, we have noted that there is increasing interest in growing native, perennial, woodland medicinal herbs and that many people wish to gain at least some supplemental income from their production. Small landowners, if they go about it wisely, can grow many of these native medicinals profitably while preserving and even enhancing their woodlands. This

book provides guidance not only in the cultivation of native forest herbs but also in the economics of their production and sale.

Aspiring herb growers are often attracted first to American ginseng, because it is the most valuable medicinal botanical and has a broad, well-established market, which has existed almost continuously for over 300 years. Indeed, in the southern part of its range, people often refer to ginseng as “green gold.” The first part of this book is devoted entirely to this one native plant.

While little information exists on the production of the other species covered in this book, a good deal has already been written on growing ginseng as a commercial venture, including *American Ginseng: Green Gold* by W. Scott Persons. In writing the 2005 version of this book, *Growing and Marketing Ginseng, Goldenseal, and Other Woodland Medicinals*, we borrowed much from the by then out-of-print 1994 edition of *Green Gold*. The many North American woodland ginseng farmers who read and used that first edition will find portions of the first part of the current book to be generally familiar; however, the content has