

Agroforestry Production of Four Rare Medicinal Herbs in NH

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Goals :

- Viable cash crop
- Use change of forest land
- Economic opportunity
- Reintroduce native plants
- Reduce wildcrafting
- Production method
- Marketing platform or hub



Agroforestry and Forest Farming

Agroforestry

Forest farming

Sustainable land use systems

Not tree farming or wild harvesting

Manage the system



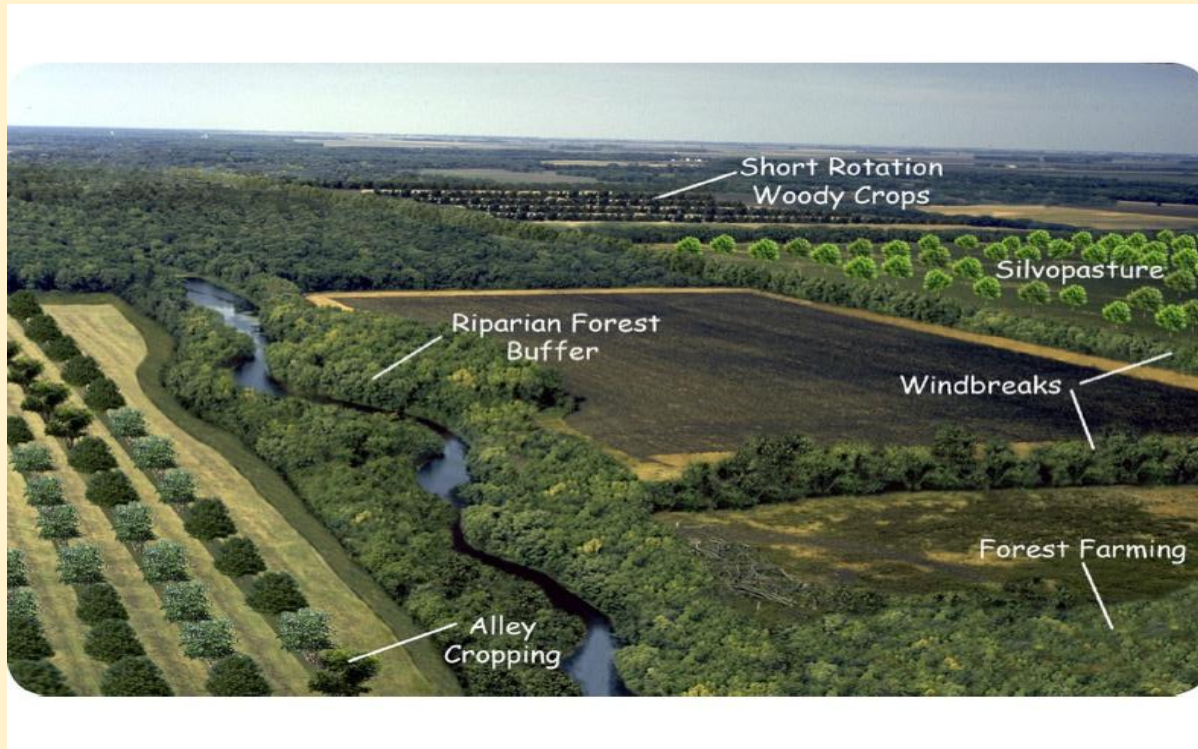
Forest farming USDA definition

Forest farming, unlike wild harvesting, involves the **intentional management** of both the overstory and understory components of the forest on a sustainable basis to produce **non-timber forest products** (NTFPs). Examples of NTFPs include medicinal herbs like ginseng (*Panax quinquefolius*), decorative plants like ferns, and food crops like mushrooms. Management techniques might include adjusting the light level on the forest floor by thinning or pruning trees, increasing plant populations by site preparation or seeding, or improving plant growth by weeding or thinning. Forest farming can provide income from NTFPs on a relatively short-term basis, while high-value timber is being produced over a longer term.

Overstory
management

Understory
management
Weeding,
transplanting,
adding compost





This image of agroforestry practices across a landscape was designed by USDA National Agroforestry Center scientists using CanVis software.



Meet the Four Medicinal Woodland Plants

All are At-Risk plants
All Native to USA
Some are native to NH

Click slide for photos



SPECIES AT-RISK LIST

STATEMENT OF PURPOSE

For the benefit of the plant communities, wild animals, harvesters, farmers, consumers, manufacturers, retailers, and practitioners, we offer this list of wild medicinal plants of North America to bring awareness to these sensitive species.

Our intent is to assure the increasing abundance of medicinal plants and fungi which are presently in decline due to expanding popularity and shrinking habitat and range.

"Critical"

ELEPHANT TREE
Bursera microphylla
FALSE UNICORN
Chamaelirium luteum
LADY'S SLIPPER ORCHID
Cypripedium spp.
PEYOTE*
Lophophora williamsii
SANDALWOOD
Santalum spp. (Hawaii only)
SUNDEW
Drosera spp.
TRILLIUM, BETH ROOT
Trillium spp.
VENUS FLY TRAP
Dionaea muscipula

* Peyote restrictions do not pertain to ceremonial uses protected by US federal law.

"In Review"

ARNICA
Arnica spp.
CHAGA
Inonotus obliquus
EYEBRIGHT
Euphrasia spp.
GHOST PIPE
Monotropa uniflora
LOBELIA
Lobelia spp.
SKUNK CABBAGE
Symplocarpus foetidus
SOLOMON'S SEAL
Polygonatum biflorum
WILD CHERRY
Prunus serotina
WILD GERANIUM
Geranium maculatum
WILD RICE
Zizania palustris
YAUPOIN
Illex vomitoria
YERBA SANTA
Eriodictyon spp.

"At-Risk"

AMERICAN GINSENG <i>Panax quinquefolius</i>	LOMATIUM <i>Lomatium dissectum</i>	SPIKENARD <i>Aralia racemosa</i> , <i>A. californica</i>
BLACK COHOSH <i>Actaea racemosa</i>	MAIDENHAIR FERN <i>Adiantum pedatum</i>	STONE ROOT <i>Collinsonia canadensis</i>
BLOODROOT <i>Sanguinaria canadensis</i>	MAYAPPLE <i>Podophyllum peltatum</i>	STREAM ORCHID <i>Epipactis gigantea</i>
BLUE COHOSH <i>Caulophyllum thalictroides</i>	OREGON GRAPE <i>Berberis</i> spp.	TRUE UNICORN <i>Aletris farinosa</i>
CASCARA SAGRADA <i>Rhamnus purshiana</i>	OSHA <i>Ligusticum porteri</i>	SQUIRREL CORN <i>Dicentra canadensis</i>
CHAPARRO <i>Castela emoryi</i>	PARTRIDGE BERRY <i>Mitchella repens</i>	VIRGINIA SNAKEROOT <i>Aristolochia serpentaria</i>
ECHINACEA <i>Echinacea</i> spp.	PINKROOT <i>Spigelia marilandica</i>	WHITE SAGE <i>Salvia apiana</i>
GENTIAN <i>Gentiana</i> spp.	PIPSISSEWA <i>Chimaphila umbellata</i>	WILD INDIGO <i>Baptisia tinctoria</i>
GOLDENSEAL <i>Hydrastis canadensis</i>	PLEURISY ROOT <i>Asclepias tuberosa</i>	WILD YAM <i>Dioscorea</i> spp.
GOLDTHREAD <i>Coptis</i> spp.	RAMPS <i>Allium tricoccum</i>	YERBA MANSA <i>Anemopsis californica</i>
KAVA, AWA <i>Piper methysticum</i> (Hawaii only)	SLIPPERY ELM <i>Ulmus rubra</i>	

List Definitions

"CRITICAL" DEFINITION

United Plant Savers recommends these plants should not be wild harvested or purchased under any circumstance except for research that directly supports the health of the population and sustainable use by Indigenous societies that have a traditional history of connection with these plants. These species have been evaluated by the Board of Directors of UPS which carefully reserves this category for species that are federally, or state protected and/or are at a very high risk of extinction.

"AT-RISK" DEFINITION

The United Plant Savers recommends that At-Risk plants should be used in cultivated forms whenever possible. Because of pressures facing these plant populations and significant variability in abundance, wild harvesting should be very limited and carefully monitored. Any wild harvest of these plants should align with rules established by federal, state, and local governments.

"IN REVIEW" DEFINITION

The In Review list contains native plants that have significant known medicinal, edible, and/or ornamental uses that have been recommended through our membership or the UPS Board. We will review and, if necessary, score these plants for consideration for the At-Risk and Critical listing. We advise caution and careful consideration when using these plants for either personal or commercial use.

Bloodroot

at risk score 47

Sanguinaria canadensis



Bloodroot

- *Papaveraceae*
(Poppy family)
- Names
- Constituents in red latex
- Historical uses
- Modern uses.
- Demand
- Wild harvested



American Ginseng

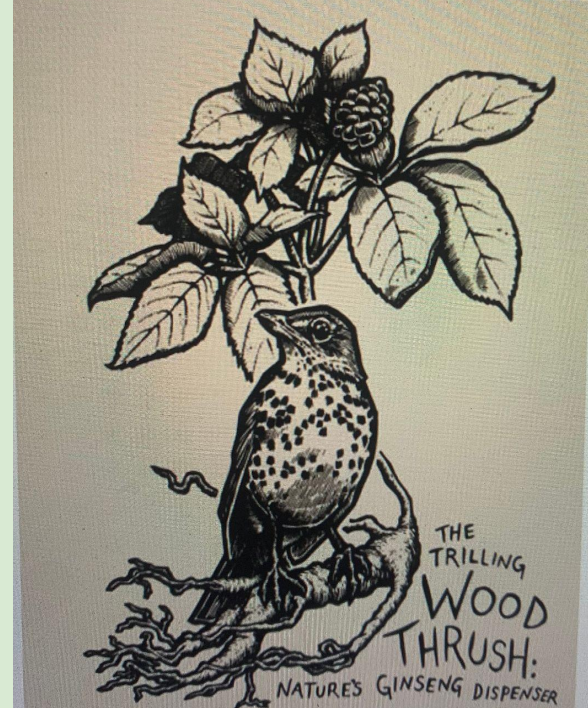
Panax quinquefolius (5 leaf)



American Ginseng

at risk score 63

- *Araliaceae*
(Spikenard family)
- Names Manroot
- Asian Panax ginseng
- Range
- General tonic
- Studies
- Demand
- Prices
- NH regulations



NH Regulations for Ginseng

According to the current website of New Hampshire Department of Agriculture, Markets & Food:

<https://www.agriculture.nh.gov/divisions/plant-industry/faq-ginseng.htm#cultivation>

there are no rules or regulations that pertain to the growing and cultivation of American ginseng by the New Hampshire Department of Agriculture, Markets & Food and a permit is not required from the New Hampshire Department of Agriculture, Markets & Food to grow American ginseng. However, In accordance with [RSA 217-A:9](#) Prohibited Acts ("The New Hampshire Native Plant Protection Act of 1987") , it is a violation for any person (other than the owner of private property) to export, import, transport, take, possess, sell, or ship any protected species. The [US Fish & Wildlife Service](#) also regulates American ginseng.

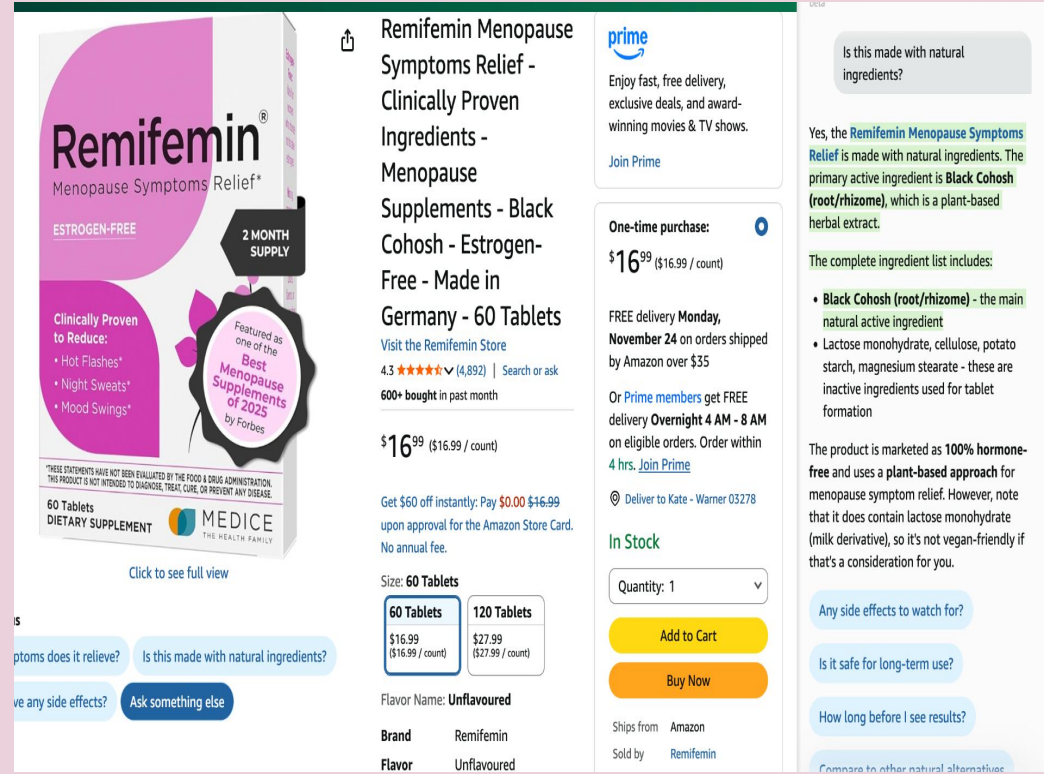
Black Cohosh

Actaea racemosa formerly *Cimicifuga racemosa*



Black Cohosh at risk score 40

- *Ranunculaceae* (Buttercup family)
- Names
- Women's herb
- First Nations usage
- Landscaping
- High demand
- Slow to regenerate



The image shows an Amazon product page for Remifemin Menopause Symptoms Relief. The product is a box of 60 tablets, labeled 'ESTROGEN-FREE' and '2 MONTH SUPPLY'. It features a 'Best Menopause Supplements of 2025' award from Forbes. The product is described as 'Clinically Proven to Reduce: Hot Flashes, Night Sweats, Mood Swings'. The price is \$16.99 per count, with a one-time purchase option. The product is marketed as 100% hormone-free and uses a plant-based approach for menopause symptom relief. The primary active ingredient is Black Cohosh (root/rhizome), which is a plant-based herbal extract. The complete ingredient list includes Black Cohosh (root/rhizome), Lactose monohydrate, cellulose, potato starch, magnesium stearate, and inactive ingredients used for tablet formation. The product is marketed as 100% hormone-free and uses a plant-based approach for menopause symptom relief. However, note that it does contain lactose monohydrate (milk derivative), so it's not vegan-friendly if that's a consideration for you.

Remifemin Menopause Symptoms Relief - Clinically Proven Ingredients - Menopause Supplements - Black Cohosh - Estrogen-Free - Made in Germany - 60 Tablets

Visit the Remifemin Store
4.3 ★★★★★ (4,892) | Search or ask
600+ bought in past month

\$16.99 (\$16.99 / count)

Get \$60 off instantly: Pay **\$0.00** ~~\$16.99~~ upon approval for the Amazon Store Card. No annual fee.

Size: 60 Tablets
60 Tablets \$16.99 (\$16.99 / count)
120 Tablets \$27.99 (\$27.99 / count)

Flavor Name: Unflavoured
Brand: Remifemin
Flavor: Unflavoured

prime
Enjoy fast, free delivery, exclusive deals, and award-winning movies & TV shows.
Join Prime

One-time purchase: **\$16.99** (\$16.99 / count)

FREE delivery **Monday, November 24** on orders shipped by Amazon over \$35

Or **Prime members** get FREE delivery **Overnight 4 AM - 8 AM** on eligible orders. Order within 4 hrs. [Join Prime](#)

Deliver to Kate - Warner 03278

In Stock

Quantity: 1

[Add to Cart](#)
[Buy Now](#)

Ships from Amazon
Sold by Remifemin

Is this made with natural ingredients?
Yes, the **Remifemin Menopause Symptoms Relief** is made with natural ingredients. The primary active ingredient is **Black Cohosh (root/rhizome)**, which is a plant-based herbal extract.

The complete ingredient list includes:

- **Black Cohosh (root/rhizome)** - the main natural active ingredient
- Lactose monohydrate, cellulose, potato starch, magnesium stearate - these are inactive ingredients used for tablet formation

The product is marketed as **100% hormone-free** and uses a **plant-based approach** for menopause symptom relief. However, note that it does contain lactose monohydrate (milk derivative), so it's not vegan-friendly if that's a consideration for you.

Any side effects to watch for?
Is it safe for long-term use?
How long before I see results?
Compare to other natural alternatives

Goldenseal

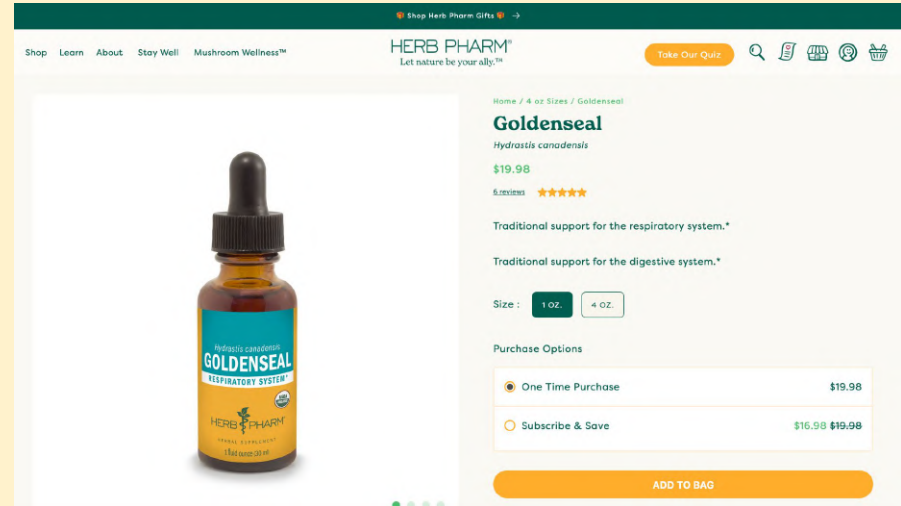
Hydrastis canadensis



Goldenseal Facts

At Risk Score 50

- *Ranunculaceae*(Buttercup family)
- Names
- Most at-risk
- Habitat loss
- Wild-harvesting
- Demand
- Cultivation
- Cancer research
- Active constituents
- Check out the video in references



The Importance of Location

A great place makes everyone happy 😊



Finding the right site and setup

Table 5. Visual Site Assessment and Grading Criteria for Potential Woodland Ginseng Growing Operation for a Northern Forest.

By Jeanine Davis and
W. Scott Persons

Our “Bible” for growing
Woodland medicinals

508 pages

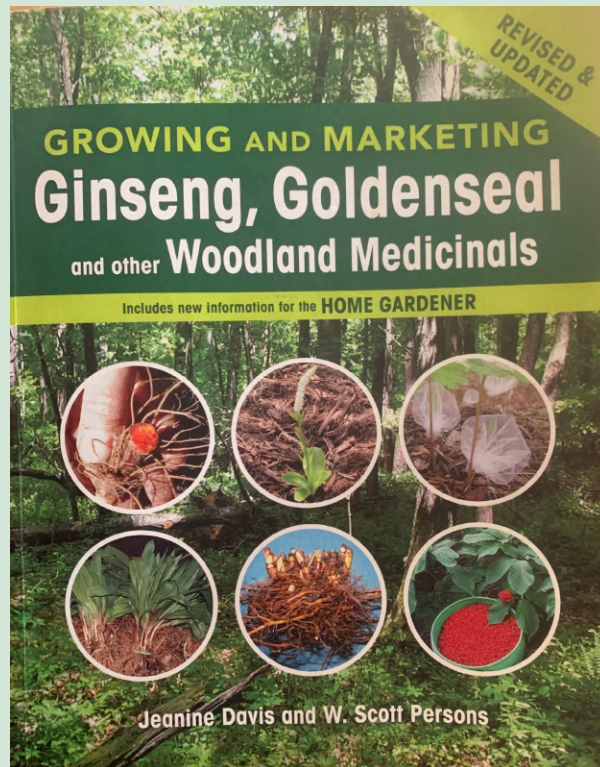


Table 5. Visual Site Assessment and Grading Criteria for Potential Woodland Ginseng Growing Operation for a Northern Forest*

Circle only one choice for each category

	Points		Points
CATEGORY A: Dominant tree species (50% or more of mature trees)		CATEGORY E: Understory plants (select highest score entry only)	
1. Sugar maple (add additional 5 points more if average circumference is greater than 60", add 2 additional points if there is a presence of butter-nut)* In areas south of New York, tulip poplar is equivalent in value to sugar maple as an indicator tree species.	10	1. Reproducing population of wild ginseng	15
2. White ash or black walnut (add additional 4 points more if average circumference is greater than 60", add 2 additional points if there is a presence of butternut)	8	2. Sparse wild ginseng	10
3. Mixed hardwoods consisting of beech, black cherry, red maple, white ash, red oak, basswood	5	3. Maidenhair fern or rattlesnake fern or red or white baneberry	8
4. Mixed hardwoods as above plus some hemlock and/or white pine	5	4. Christmas fern or blue cohosh or red-berried elderberry or foamflower or stinging nettles *(spicebush is often found with wild ginseng in southern or midwestern sites and is considered a good indicator plant there)	6
5. Red and/or white oak	3	5. Jack-in-the-pulpit or other ferns or trillium or bloodroot* (bloodroot is a much higher scoring indicator plant south of New York) or jewelweed or mayapple or herb Robert (a type of wild geranium) or true/false Solomon's seal	5
6. Ironwood, birch, aspen	1	6. Wild sarsaparilla or Virginia creeper or ground nut or yellow lady's slipper or hepatica	3
7. All softwoods, pine, hemlock, spruce, fir	0	7. Club moss or princess pine or bunchberry or garlic mustard or pink lady's slipper	0
CATEGORY B: Exposure (orientation)		8. Woody shrubs such as honeysuckle, mountain laurel, witch hazel, barberry, maple leaf viburnum, arrowwood, shrubby dogwoods, alder, lowbush and highbush blueberry	0
1. North-, east-, or northeast-facing	5	CATEGORY F: Security	
2. South-, southeast-, northwest-facing	2	1. Very close to full-time residence of potential grower, with planting site within view of residence (noisy, outside dogs housed nearby add 5 points)	10
3. West-, southwest-facing	0	2. Forested land less than 440 yards (one-quarter mile) from grower's residence, patrolled regularly	8
CATEGORY C: Slope		3. Regularly patrolled woodlot within one mile of residence	3
1. 10% to 25% slope	5	4. Nonresident grower or remote woodlot	0
2. 2% to 9% slope	3	Total Score:	
3. <10% or >25% slope	0	Results:	
CATEGORY D: Soil and site surface characteristics		50 points or above: Excellent site, great potential	
1. Site dominated by mostly very large trees, more than 20" in diameter, few surface rocks, 75% of site plantable	10	40 to 50 points: Good site, do complete soil analysis	
2. Site dominated by medium-sized trees, 10-20" in diameter, some surface rocks, 50% plantable	8	30 to 40 points: Fair site, test soil	
3. Small trees less than 10" in diameter, very stony, 25%-50% plantable	5	Less than 30 points: Poor site, look elsewhere	
4. No large trees, saplings and shrubs dominate or large rock outcropping, many boulders, less than 25% tillable	3	* Prepared by Bob Beyfuss, Cornell Cooperative Extension Agent, Greene County, New York (Revised 02/04). Comments following asterisks were added by author for relevance in other parts of the country.	
5. Soil too rocky to plant anywhere, poorly drained, standing water present	0		

Soil, Shade, Sugar Maples

Soil testing

Moisture

Shade -

PH 5 ± 0.7 c

Calcium

Lime

Organic matter

Coves/Groves aluminum

Historical relevance in USA & NH

China - *Panax ginseng*

US Appalachia & Canada - *Panax quinquefolius*

Daniel Boone & George Washington

NH only plant not historically present is goldenseal.

Black cohosh may have been introduced.

Shaker communities may have grown or wild harvested

Merrimack County¹ presence of ginseng in 1885



1.Hurd, D. Hamilton, editor. History of Merrimack and Belknap counties, New Hampshire. [Philadelphia Pa. J. W. Lewis & co, 1885] Pdf.
<https://www.loc.gov/item/01007961/>.

[illegible]

The trouble has no takers of more importance and value, they are for a time a devoted red's nest, and continue to have on hand about a half-dozen of boxes to contain the red who get a quick supply while occupying the bar and enjoying the honey.

Setup - 8 Plots 4 Root Plots + 4 Seed Plots

5X20 plots fenced areas with 4'X16' livestock panels



Companion Plants

Yes or No ?

Symbiosis

Beneficial companion

Weed out invasives or
competitors



Seeds and Roots

Ginseng



Goldenseal



Black cohosh



Bloodroot



Wait for spring ! Will the plants come up ??

Planting in the snow



Spring 2023 THEY MADE IT through the winter !!!



First year plots 2023



Click slide for photos

Issues: Insect Damage, Weather, Predation, Poaching



2023 best seed production

Opportunity to observe **myrmecochory**
(the relationship of ants with bloodroot seed)

Racoons

2024 moderate drought

Maine Organic Farmers and Gardeners Assoc

Certification Services certified plots as organic

Incredible red acorn mast year - rained acorns for a week

2025 severe drought-stressed plants

Ginseng seed eaten in green stage by mice

Caterpillar frass aka poop rains down on every thing for week

Many types of caterpillars on everything

Wood thrush, owls and hawks living close to the site

Ginseng measurements show average weight gain of

0.24oz



myrmecochory



caterpillars





Squirrel using pathway between plots



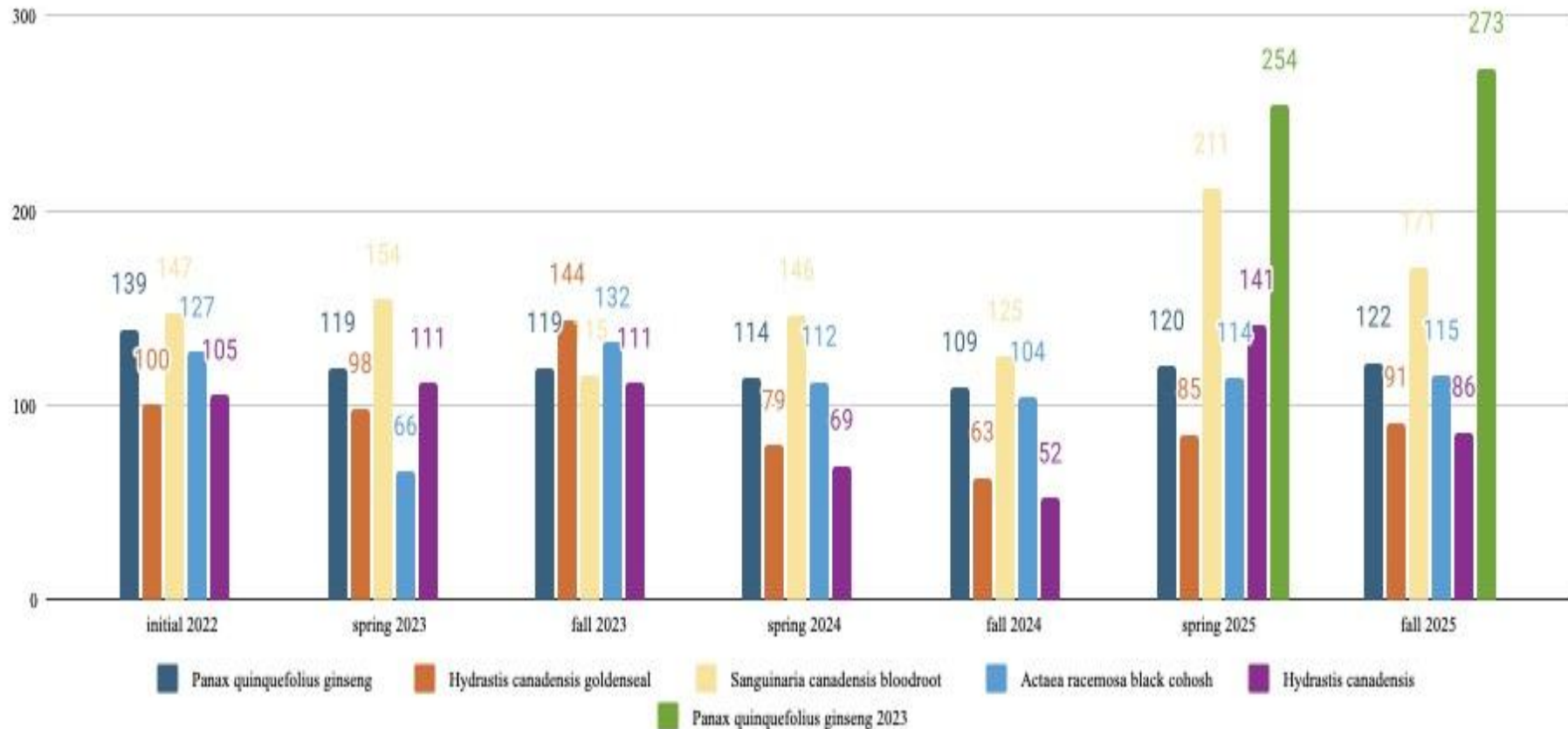
Resident chipmunk



A Few nice acorns



Stem Production by Year and Species



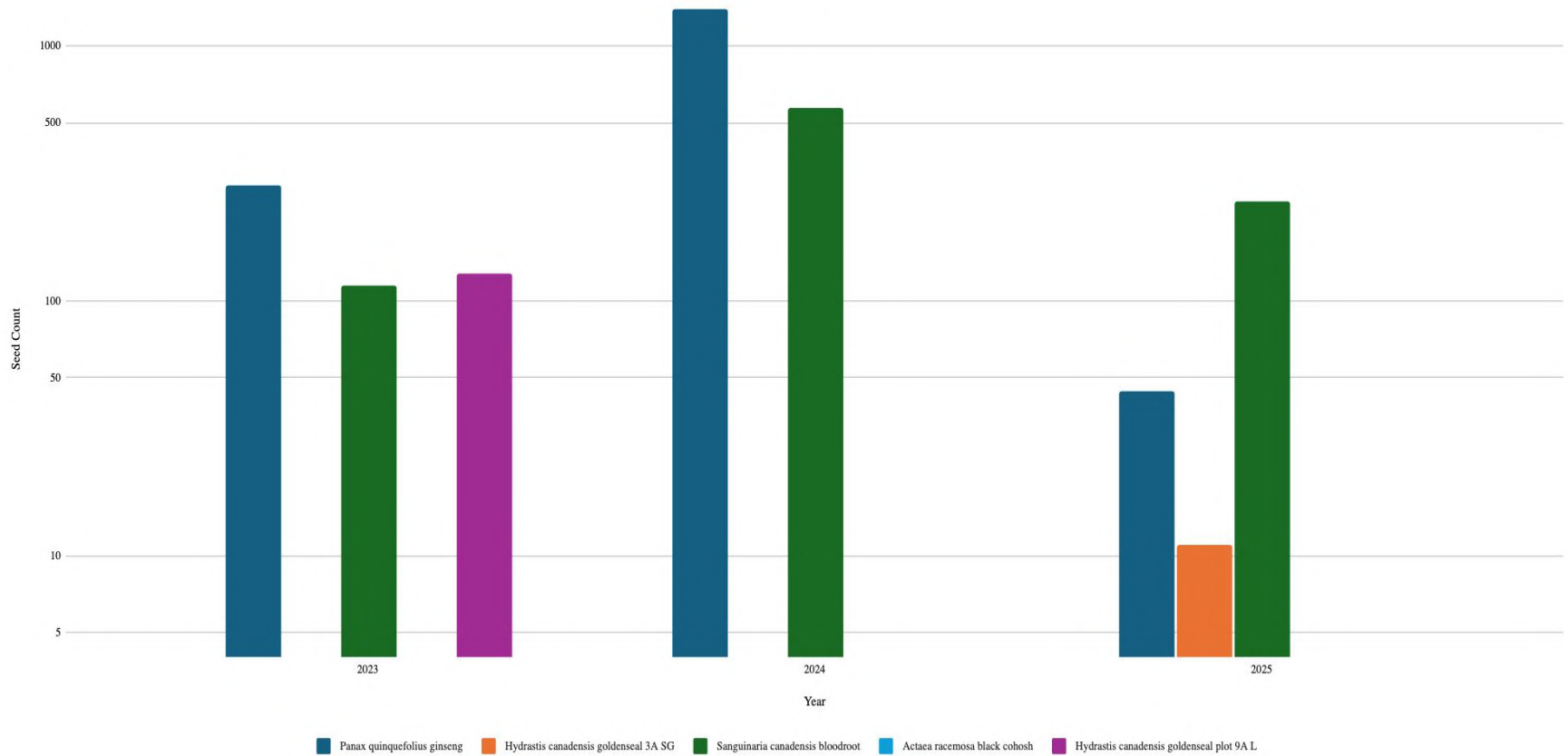
Counting and Replanting seed - New Plots



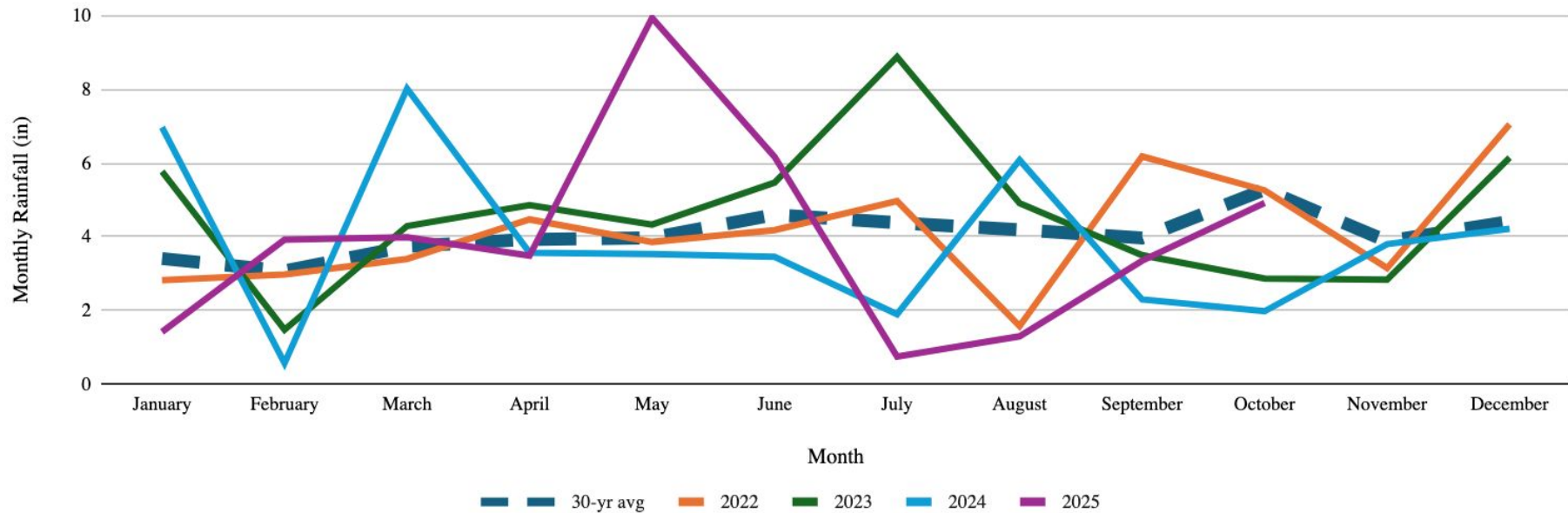
Best way to keep track of seed successions by starting new plots and taking data

With the hope of creating regionally adapted herbs to the climate of this region

Seed Counts 2023-2025



Monthly Rainfall, 2022-2025 & 30 year Average



Mentors / Technical Consultants

One of the best parts of the program

Highly recommend

Advice

Experience

Possible collaborators



Outcomes and Conclusion

This project demonstrates that bloodroot, black cohosh, goldenseal, ginseng and other medicinals can be grown as a small scale enterprise in New Hampshire over the course of three years. However, more research is needed to determine if the four medicinals can be grown to high quality mature plants.

At least two to seven more years is needed to reach the desired market sizes and weights for roots.

There is a market for forest grown high quality medicinal herbs and trade is booming with a need for additional growers to satisfy demand for threatened herbs that are cultivated and prohibited from collection in the wild.

Infrastructure such as rural herb hubs and shared processing facilities for small farmers to share equipment and participate in selling their non-timber forest products would need to be developed for New Hampshire to be able to enter into these markets .

What's next ?

Continue project
Present project
NH Herb Hub
Collaborate



Resources

Davis, J., & W. Scott Persons. (2014). *Growing and Marketing Ginseng, Goldenseal and other Woodland Medicinals*. New Society Publishers.

[Forest Farming](#)

[American Herbal Products Association](#)

[Herb/Specialty Crop Connection-to Help Connect NC Herb & Specialty Crops Growers With the Industry | NC State Extension](#)

[United Plant Savers](#) [Species At Risk List by United Plant Savers](#)

https://www.youtube.com/watch?v=kF_sKCjsRvg short video goldenseal VA tech

[Agroforestry: USDA Reports to America, Fiscal Years 2011-2012--In-Brief](#)

[What is agroforestry? What is forest farming?](#)

[Ginseng FAQs | Plant Industry | NH Department of Agriculture, Markets and Food](#)

USDA National Agroforestry Center. 2012. "About Agroforestry." www.unl.edu/

[Forest Service Research and Development](#)

[Natural Heritage | NH Division of Forests and Lands](#)