value. Prior to sale, the roots are cleaned (without scrubbing or scouring) and dried. The drying process involves spreading the roots on lattice or wire shelves in a heated and well ventilated room. It may take up to 6 weeks for the roots to dry, during which time they should be turned frequently. A root which is 4 inches long and 1 inch thick will weigh about an ounce, but may lose up to 70 percent of its weight during the drying process.

Marketing Ginseng

Nearly all ginseng produced in the U.S., both cultivated and collected, is exported to Asia. In China, the wild simulated ginseng remains strong. Companies advertise on internet looking to purchase wild simulated ginseng, and even solicit individuals to grow it for them.

Due to the complexities of dealing with an export market, the best way for landowners to market ginseng is to work with a broker. For information about purchasers of ginseng, contact DEM/Division of Forest Environment at 647-3367.

In recent years, increased production of cultivated ginseng has flooded the market, resulting in reduced prices for this type of ginseng. However, the demand for wild simulated ginseng remains strong. Companies advertise on internet looking to purchase wild simulated ginseng, and even solicit individuals to grow it for them.

Due to the complexities of dealing with an export market, the best way for landowners to market ginseng is to work with a broker. For information about purchasers of ginseng, contact DEM/Division of Forest Environment at 647-3367.

Projected Budget for Growing a 1/2 acre Wild-Stimulated Ginseng

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sows (10 lbs.)</td>
<td>$750</td>
</tr>
<tr>
<td>Labor</td>
<td>$1,250</td>
</tr>
<tr>
<td>Planting (1/2 acre)</td>
<td>$1,250</td>
</tr>
<tr>
<td>Maintenance (200 HF)</td>
<td>$5,000</td>
</tr>
<tr>
<td>Equipment &amp; Materials</td>
<td>$250</td>
</tr>
<tr>
<td>Draping</td>
<td>$440</td>
</tr>
<tr>
<td>Total Cost of Production</td>
<td>$7,690</td>
</tr>
<tr>
<td>Revenue (at $300/lb)</td>
<td>$24,000</td>
</tr>
</tbody>
</table>


Other Sources of Information


RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT & THE RURAL LANDS COALITION SUBCOMMITTEE PARTICIPANTS INCLUDE:

Rhode Island DEM: Office of Sustainable Watersheds Division of Forest Environment Division of Agriculture
Rhode Island Forest Conservators Organization Southern New England Forest Consortium USDA, Natural Resources Conservation Service

FOR MORE INFORMATION CONTACT:
RI DEM. Division of Forest Environment (401) 637-3367 or visit our website at: www.state.ri.us/dem/programs
USDA, Natural Resources Conservation Service (401) 828-1300

Ginseng

Native ginseng has been decimated throughout its native range where high prices have led to collection of plants before they have had a chance to produce seed. Therefore, ginseng is now listed as an endangered plant throughout much of its natural range; and wild plants are officially protected by law. The U.S. Fish and Wildlife Service lists ginseng as a plant that needs protection; thus, exports are regulated. Ginseng must be certified whether it is wild or cultivated. States must adopt a conservation program to allow harvest of wild roots.

Growing Ginseng

There are three basic ways to cultivate ginseng. It can be grown in fields with artificial shade, cultivated in the forest or grown under "wild simulated" conditions.

Field grown ginseng produces the highest yields in the shortest time, but requires a significant investment of labor and materials. This method is similar to growing an agricultural crop. The price received for field grown ginseng is lower than forest grown due to the lightness and smoothness of the roots, which don’t resemble wild ginseng. Forest grown ginseng is grown under a forest canopy. The level of management varies and can involve clearing brush or even creating raised planting beds.
Growing wild simulated ginseng approximates the conditions under which ginseng grows naturally. This technique, which involves minimal site preparation, seed scattering and mulching, and is most appropriate for forestland that is managed for multiple use purposes. Although yields are lower than more intensively cultivated ginseng, the price received is close to that received for authentic wild ginseng.

Site Selection
The most important step in growing ginseng is choosing an appropriate site, since the plants are very sensitive and only grow well under favorable soil conditions.

Ginseng grows in rich, moist, and well-aerated woodland soil, and is usually found in the understory of hardwood forests. The soil should be loamy and high in organic matter. The plants prefer cool, moist conditions and partial shade, so the lower portions of north and east facing slopes provide ideal growing sites.

Ginseng is usually found growing in association with other plants that require similar soil conditions, such as maidenhair fern, blue cohosh, and turkey oak. Red oak, white ash and sugar maple are tree species typically found growing with ginseng. If these “indicator species” are present, favorable conditions for growing ginseng may exist.

Site Preparation
The goal of preparing the site is to create an area that will be easy to plant and maintain.

Ginseng needs partial shade and free air circulation to grow vigorously and withstand disease. The forest should be thinned, so that there is about 70 percent shade. Sunlight must reach the forest floor to promote the growth of the ginseng, but there must be enough shade to discourage small trees and shrubs from becoming established.

Hand thinning can be used to prepare the site. All vegetation that might compete with ginseng, such as small trees and other woody plants, must be removed.

Visual Site Assessment and Grading Criteria for Potential Woodland Ginseng Growing Operations

BOB BEYFSS
CORNELL COOPERATIVE EXTENSION

DOMINANT TREE SPECIES
1. Sugar maple +10
2. White ash +10
3. Mixed hardwoods (bass, cherry, red maple, white ash, red oak) +5
4. Mixed hardwoods above plus some hemlock and white pine +5
5. Red or white oak +3
6. Ironwood, birch, hickory +1
7. If softwoods +0

EXPOSURE (ORIENTATION)
1. North, east, or northeast facing +5
2. South, southeast, northwest +2
3. West, southwest +0

SLOPE
1. 10 to 20 % +4
2. Level +3
3. 20 to 40 % slope +0

SOIL PHYSICAL CHARACTERISTICS
1. Few stones, 75% tillable +10
2. Moderate small stones, 50% tillable +6
3. Very stony, 25-50% tillable +5
4. Large rock outcropping, boulders less than 25% tillable +3
5. Soil too rocky to till +0

UNDERSTORY PLANTS
1. Reproducing population of wild ginseng +15
2. Sparse wild ginseng +10
3. Maidenhair fern, rattlesnake fern +8
4. Christmas fern, blue cohosh, baneberry +6
5. Jack in a pulpit, other ferns, trillium, woodlot, mayapple, elderberry +5
6. Wild sarsaparilla, Virginia creeper, baneberry +4
7. Club moss, princess pine, bunch-berry +0
8. Woody shrubs (spice bush, witch hazel, viburnum, dogwoods) +0

SECURITY
1. Very close to occupied, full time residence of potential grower, with easy view of residence +10
2. Forested land less than 300 to 500 yards from grower’s residence, patrolled regularly +8
3. Remote woodland within 1/4 mile of residence, patrolled regularly +3

Grand Total (A through F)
40 to 59. Excellent site, great potential.
30 to 40. Good site, do complete soil analysis.
20 to 30. Fair site, test soil.
Less than 20. Poor site, look elsewhere.

Indicator Plants Usually Found In Areas Suitable For Growing Ginseng

Planting
Growing “wild simulated” ginseng involves raking back the forest litter and broadcasting seed before planting seedlings or roots.

Seeds can be planted from late summer until the ground freezes. Sometimes seed is planted in the spring (before April), in order to reduce the amount eaten by rodents. Seeds should be planted 1/2 of an inch to 1 inch deep and 6 to 12 inches apart. Seventy-five to 100 pounds of seed are needed per acre, and the area should be mulched with 2 to 3 inches of leaf mold.

The use of seed has many advantages. It is the cheapest method, presents less of a risk that disease will be introduced into the crop, and leads to the development of plants that garner the high prices which are typical for wild ginseng.

There are several disadvantages to using this method. Seeds can only be cultivated under the most ideal soil conditions and a low germination rate and tricky dormancy means that it may require two years until the seed is mature and ready to germinate (this problem can be avoided by purchasing stratified seed). Finally, it may take 6 to 10 years to produce a crop.

Seedlings can be planted between October and April, but fall is optimum. Planting 1 to 3 year old transplants will reduce the wait until the ginseng can be harvested by 2 to 3 years, and may yield a crop of seed in 1 to 3 years. The seedlings should be planted 8 inches apart and mulched with leaf mold to prevent frost heaving.

Roots are planted in the fall, after the tops of the plants have begun to die. They should be planted 3/4 of an inch to 1 inch deep and mulched with 1 or 2 inches of leaves from the forest floor.

Pests
In the wild, ginseng is not usually affected by disease, but cultivation creates conditions that favor outbreaks. Diseases caused by fungus, including root rot and lead diseases, are common. The best way to reduce the impacts of disease is to promote healthy plants through careful site selection, adequate drainage and good air circulation.

Squirrel’s, mice, turkeys and deer all eat ginseng, but this problem can be controlled by setting traps or using repellents.

In some areas, theft may be a concern. This possibility should be taken into consideration by selecting planting sites that are visible from residences or easy to patrol.

In most cases, the use of fertilizers is not desirable since it changes the appearance of the root, making it less valuable, and may lower the plants resistance to disease. It is also not recommended to rotate two crops of ginseng in the same location, since the soil will be depleted of nutrients and can harbor diseases carried by the previous crop.

As the ginseng plants grow, competition between the plants increases and some die due to competition. This is a natural occurrence that depends on growing conditions and will vary between sites. Although the growth and yield cannot be predicted with any certainty, it’s a safe bet only a fraction of the plants will grow to maturity.

Harvesting Ginseng
For ginseng to reach a harvestable size, it is necessary to wait 5 to 12 years when planted from seed, and 2 to 4 years if it started from transplants.

Mature plants will be about 1 foot tall and have 3 or 4 compound leaves. The roots differ with the maturity of the plant, but are generally about 1 inch thick and range from 2 to 5 inches in length. The roots may be forked and have circular ridges, both of which are characteristics that make the ginseng more valuable.

Roots are harvested in the fall, after the plant tops have died. They should be dug carefully, since damage may affect their