

Carbon Offsets And American Ginseng: Combined Management For Productive and Profitable Forests

What Is Carbon Sequestration?

Carbon sequestration is the process used by trees and other woody plants to capture CO₂ from the air and convert it into wood. By measuring the amount of growth in a specific tree, or stand of trees, it is possible to calculate the amount of CO₂ being stored. In recent years, financial markets place a value on this stored carbon because it has been shown as a way to reduce atmospheric CO₂. The market refers to this as an "ecosystem service." Forest landowners can be paid for the ecosystem service their trees provide by participating in a managed forest offset program like the Appalachian Carbon Partnership.



The Appalachian Carbon Partnership

The Appalachian Carbon Partnership (ACP) was created to promote sustainable forest management in Central Appalachia, and create a new economic opportunity for woodland owners through the sale of carbon offsets. The ACP works directly with forest owners in Kentucky, Ohio, Virginia, Tennessee, and West Virginia. Besides storing carbon, a mature forest provides many other benefits including wildlife habitat, recreation, aesthetic quality, and increased biodiversity. Other opportunities that may be overlooked can also include high-value understory crops. Many understory crops naturally occur in the forest and can be managed to enhance production. By using the natural conditions of the forest these crops can be produced with little to no impact on the surrounding ecosystem.

High-Value Forest Botanicals

The term "forest botanicals" refers to several native understory plants with medicinal properties that are commonly harvested and sold in central Appalachia. These plants have been collected from the wild for centuries and have well developed markets in the U.S., Europe, and Asia. By mimicking conditions found in the wild these plants can be grown with minimal inputs and labor, and sold for a profit. The most profitable species currently being cultivated is wild-simulated American ginseng, which sells for \$350-\$500 per dried pound.



How Can They Work Together?

Incorporating ginseng production into the ACP can be a good way to increase forest productivity, and create additional economic benefits. During a 15 year period a grower could harvest 2-3 ginseng crops while simultaneously collecting income from carbon offsets. By law ginseng roots must be 5 years old to harvest and sell. Every additional year after the 5th year will add quality and value to the roots as they develop a more rugged and wild appearance. As a general rule, it is best to wait until after the 7th year of growth to receive top dollar. See Tables 1 and 2 for estimated budgets and potential earnings.



Inputs, Expenses, & Returns

Wild-simulated cultivation can eliminate many labor requirements and lower production costs for small-scale producers. Most labor costs will not translate into cash expenses if you are able to do the work yourself, but will require an investment of time. In a wild-simulated production system most of the labor will be needed during planting and harvest. The site preparation and planting process can take several hours, with an average rate of 1 lb. of seed planted every 4 hours. Once the plantings are established maintenance will include visual inspections for signs of disease, animal predation, and eliminating pests when needed. Table 1 is an approximated budget for 1/2 acre of wild-simulated ginseng. Note that this budget does not account for all expenses that may arise over the life of the crop. Additional expenses could include rodent control, animal deterrents, tools, hired help, or soil amendments. Table 2 shows potential income from carbon offsets each year at a sequestration rate of 3 tons CO₂/acre/year. To participate in the ACP a landowner is required to have a management plan, be a certified Tree Farm, have an ACP forest inventory completed, and have a signed 15 year contract.

**(Table 1.) Potential Income From 1/2 Acre Wild-Simulated Ginseng Production After 7-10 Years Growth
(*Note: Additional Costs May Be Incurred)**

Seed Planted (Lbs.)	Seed Cost (\$80/Lb.)	% Survival	Root Yield (280 Roots/Lb.)	Gross Income (\$350/Lb.)	Net Income (Minus Seed Cost)
10 Lbs.	\$800	10%	25 Lbs.	\$8,750	\$7,950
10 Lbs.	\$800	25%	60 Lbs.	\$21,000	\$20,200
10 Lbs.	\$800	35%	80 Lbs.	\$28,000	\$27,200
10 Lbs.	\$800	50%	120Lbs	\$42,000	\$41,200

(Table 2.) Potential Income From 15 Years Of Carbon Offsets At 3 Tons/ Acre/ Year

Price	\$3.00	\$5.00	\$7.00	\$10.00	\$15.00
30 Acres	\$2,295	\$3,855	\$5,400	\$7,740	\$11,625
50 Acres	\$3,825	\$6,420	\$9,000	\$12,900	\$19,380
100 Acres	\$7,650	\$12,825	\$18,015	\$25,785	\$38,745
200 Acres	\$15,300	\$25,665	\$36,030	\$51,585	\$77,505

Find Out More

To learn more about planting procedures, maintenance, and other aspects of ginseng production, reference the "Growing American Ginseng In Ohio" series of factsheets co-authored by Rural Action and The Ohio State University Extension. This five part series details site selection, planting using the wild-simulated method, crop maintenance, and post harvest handling. The complete series is available online at <http://ohioline.osu.edu> free of charge.

To find out more about The Appalachian Carbon Partnership, managed forest offsets, or how to enroll your land, visit the ACP website at www.appalachiancarbonpartnership.org

