

# Large-Scale Contract Growing of Medicinals and Botanicals in Agroforestry Systems<sup>1</sup>

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**ABSTRACT:** Over the past 100 years, Wilcox Natural Products has grown from a small turn-of-the-century business specializing in “Wildcrafted Botanicals”, into a globally recognized supplier of quality cultivated and wildcrafted botanicals. Ed Fletcher will detail Wilcox’s innovative efforts to contract with private landowners to produce large-scale quantities of commercially valuable medicinals and botanicals.

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## Introduction

Thanks to the University of Minnesota’s Extension Service for the invitation and opportunity to speak at the North American Conference on Enterprise Development Through Agroforestry: Farming the Agroforest for Specialty Products and thanks to each of you for showing your interest by attending.

Wilcox Natural Products has been in the business of farming the agroforestry since 1900. When I started with Wilcox Natural Products my first project was to develop a cultivation program for many botanicals used in the Medicinal Botanical Industry. A large number of these are what we call woodland botanicals, but for this conference I’ll call them “forest botanicals”. Many of these botanicals are so abundant in certain areas of the country that some people think cultivating them is crazy. But “they” said the same thing about us when we started cultivating Goldenseal (*Hydrastis canadensis*), in the early 90’s because the price of wild material was so much cheaper than the costs of cultivating. Because of our foresight and dedication to cultivation we are now beginning to reap the benefits of our commitment.

## Personal History:

I grew up in a family business, Gardens of The Blue Ridge, which was founded by my great-grandfather in 1892 and is a retail mail order ornamental native plant nursery. The nursery is located less than 30 miles from Wilcox Natural Products and also grows native plants such as *Hydrastis canadensis*, *Cimicifuga racemosa*, *Sanguinaria canadensis* and *Panax quinquefolium*. Both businesses are located in Appalachian Mountains because of the diverse florabunda. Personally I have been growing native plants on a commercial scale for 20 years.

## Root Story

My education is in business with Botany and some earth sciences classes but when I would get into the plant biology or propagation classes they would ask me to teach the class. That’s hands on knowledge compared to book knowledge. This was in the ornamental industry so I am shifting from characteristics such as color schemes, height and blooming seasons to plant population per acre/hectare, lbs per acre/hectare, and time frame to harvestable product. So the growing comes easy, as long as the proper growing conditions are provided, it’s just the logistics of where and how much that is the challenge.

As with all plants, to successfully cultivate them you must grow them in an environmental setting, which mimics their native habitat as closely as possible. There are many factors to consider when determining the proper site for cultivating a native plant:

*Oxygen* - plant cells require oxygen for respiration. The soil also must have the proper porosity, as roots need oxygen too.

*Light* - effects plants in two ways. First, it is essential for photosynthesis, providing the plant with the energy to split water molecules, take up and fix carbon dioxide, and synthesize the building blocks for growth and development. Second, light creates heat and the energy absorbed from this light affects the temperature of the plant, which makes the percent ratio of shade to sunlight very important.

*Day length* - is a critical factor in regulating vegetative growth, flower initiation and development, and the induction of dormancy.

*Air movement* - dehydrating or drying effects from

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wind and temperatures.

*Soil pH* - The ability of plant roots to take up water and nutrients depends on the relative alkalinity or acidity of the soil. While it is possible to manipulate the pH of soil with amendments, it is easier to choose soil pH appropriate to the plant.

Last but definitely not least;

*Nutrients* - Plants vary greatly from genus to genus and even within the genus between species to species in the ratio and form of elements they need for consistent, healthy growth.

Soil analysis results shows the basic needs of each plant in its native habitat.

We continually monitor plants through soil sample and tissue sample analysis. This helps to provide the best possible environment for them to grow and prosper, and hopefully to produce a good harvestable crop.

Example of a good forestland botanical to grow is goldenseal. It is a clump-forming rhizomatous grower with fibrous roots. The combination percentage of rhizome to fiber roots depends on the soil type in which it grows. As with most rhizomatous growers, the older parts of the rhizomes begin to decay as the growth strength transfers to the apical meristem for next season's growth. Soil types vary yet most are woody loam based, and are slightly acidic ranging in pH from 5.6 to 6.2. The yearly life cycle begins with the first growth emerging from early to mid Spring which is in April to May in our vicinity, then blooming the last of June with berries appearing soon after. It begins to mature in mid-July.

Whether it is managing wild stands of *Serenoa repens* or forest-cultivated Goldenseal, Agroforestry definitely has a bright future.

Thank you for your attention and please come by our booth and look over the books we have for sale and pick one or two up because we don't want to carry back to North Carolina. Thanks again and enjoy the rest of the conference.