



JOURNAL OF THE NACAA

ISSN 2158-9429

VOLUME 16, ISSUE 1 – JUNE, 2023

Editor: Linda Chalker-Scott

Shonkwiler, V.¹, Eason, N.², Campbell, B.³

¹*Agribusiness Economist and Instructor, University of Georgia, College of Agriculture and Environmental Sciences, Georgia, 30605*

²*Agriculture and Natural Resources Agent, University of Georgia, College of Agriculture and Environmental Sciences, Georgia, 30528*

³*Associate Professor, Agriculture and Applied Economics, University of Georgia, College of Agriculture and Environmental Sciences, Georgia, 30605*

Considerations for Starting a Lavender Business in Georgia

Abstract

Still at an early stage of development in the U.S. compared to European countries, commercial lavender is best grown in the western part of the country. Despite not being an optimal fit for soil and climatic conditions in Georgia, the number of lavender farms has more than doubled in the state since 2016. Operational, marketing, and financial information related to starting a lavender venture in Georgia are presented in this paper. Based on the study of 12 Georgia farms, two business models are identified as the most profitable: the “lavender passionate” and the “lavender diversified.”

Keywords: Lavender, agritourism, farm operation, marketing, enterprise budget

Introduction

Lavender production and retailing are a growing segment in U.S. agriculture. According to the 2019 Census of Horticultural Specialties (USDA NASS, 2019), there were 1,317 reported lavender operations in the U.S., 154 more than the previous census (USDA NASS, 2014). While wholesale operations have declined slightly over time (10 fewer in 2019), retail has gained 160 operations between the two censuses. Sales of lavender were evaluated at \$16.3 million in 2019, 18% more than in 2014, making it the sixth-

highest selling perennial plant in the U.S. based on retail sales (USDA NASS, 2014; USDA NASS, 2019). U.S. production of lavender is still at an early stage of development compared to Bulgaria and France - the top two producers of lavender worldwide. Lavender growers in the U.S. tend to be small-scale operations, relying on value-added sales and capitalizing on the keen interest in agritourism (Wallin, 2016).

The number of lavender farms in Georgia has more than doubled since 2016. There is little to no established market, given that the large-scale requirements for essential oil processing do not fit with the soil and climatic conditions in Georgia. However, the on-farm agritourism potential related to lavender has proven very successful in the state. This makes it a potentially attractive source of income for growers.

This article consolidates information from previous studies focusing on lavender production in the U.S. and the main results of a study conducted in Georgia called “*Assessing Production Practices, Distribution Channels, and Promotional Tools for Lavender that is Grown in Georgia*” sponsored by USDA Specialty Crop Grant program through the Georgia Department of Agriculture (Federal Identification No: 16-SCBGP-GA-0010). The study conducted in Georgia had three components to support original data collection from producers, professional buyers, and final buyers. Interviews were conducted with 12 Georgia lavender growers, covering all horticultural aspects of their production including the costs and prices needed to establish an enterprise budget. Professional buyers, such as those involved with aroma design, spas, and specialty stores, were identified and interviewed to evaluate their preferences in terms of species, quantity, price, and origin of lavender. Qualtrics was used to survey 1179 final buyers who were asked about their preferences for lavender products and co-products as well as their willingness to pay for lavender products.

Growing Lavender in Georgia

Species and varieties selection

Lavender (*Lavandula*) is a genus of more than 30 species of flowering plants in the mint family (*Lamiaceae*), with cultivars numbering in the hundreds with varying uses, such as

culinary and medicinal (Beus, 2005). This plant is an Old-World genus, found in semiarid to arid locations. Lavenders do not typically tolerate the high humidity and heavy, seasonally-wet clay soils that are commonly found in the southeast region of the United States. However, a few varieties fare better in southern climates, and lavender can grow in Georgia with proper care and attention.

There has been little to no formal research on varieties that work best in Georgia. Growers have had to educate themselves about lavender production, and a few farms successfully produce more than 25 different species of lavender. The two most popular varieties are hardy species like *L. angustifolia* (English lavender) or *Lavandula x intermedia*, a hybrid cross between English and Portuguese lavender (*L. latifolia*), also called lavandin.

Soil and climate

Most Georgia lavender farms are in the Blue Ridge region, comprising the state's highest mountain range in the northeast part of the state (Seabrook, 2020). Increased elevation seems to have positive influence on lavender survival (Rittenhouse, 2018). Topography, soil type, and air flow found in North Georgia seem to be a more conducive environment for the crop. However, excessive rainfall will slow plant growth.

The variation of lavender life expectancy in Georgia largely depends on the weather conditions. Annual rainfall can vary between 45 to 100 inches of rainfall depending on the location in the state. North Georgia is characterized with cooler temperatures and drier summers, but are likewise plagued with heavy rains through the growing season.

Consequently, topography plays a significant role in lavender farming. Lavender is highly susceptible to root/crown rot diseases in poorly-drained, heavy soils. Drip irrigation helps reduce foliage moisture and potential soil-borne diseases, such as *Phytophthora* (Jeffers, 2017). A few Georgia growers also point out that a slope of the terrain is highly desirable because it allows a faster drainage after a rainfall.

Additionally, soil type is an important constraint in Georgia because lavender plants prefer poor, rocky and well-drained soils (Rittenhouse, 2018). Georgia growers have

proven that this plant can be grown successfully on clay or clay loam soil. As mentioned in other studies, hilling and soil amendments such as sand and pebbles, are typically crucial to help promote drainage (Rittenhouse, 2018). Soil pH for each planting area would also need to be tested at least every other year to ensure targeted pH goals are at appropriate levels: i.e., a range of 6-8 (Beus, 2005).

Finally, good air flow positively impacts the plants' growth. Air circulation keeps the leaves dry and reduces likelihood of fungal diseases (American Meadows, 2023). Growers from the Blue Ridge region have observed that under favorable conditions, lavender plants survive around 4 to 6 years due to the faster growth in the sub-tropical climate of the Southeast, as opposed to the 8 to 12 years life span in Europe. Growers can still expect to replace up to 20% of their plants yearly (Piney Woods Farm, 2022).

Material and production

Securing quality plant material is the next crucial step in the startup process. Growers should work with a certified propagator, place orders in the fall before spring planting, and ideally have every tray tested for diseases. Commonly, plants are sold in growing trays from 50 to 72 units per tray. Larger plants are more expensive but result in a more rapid establishment in the field. Propagation from seed will take a 3 to 4-year cycle, whereas transplanting a gallon plant will be rewarding as early as 1 year (Hailey, 2023). In this case, each pot needs to be tested as well.

Planting lavender must be done by hand. For most lavender varieties suitable for Georgia climate, each plant should be planted 2 to 2.5 feet apart in the row. Each row should be spaced 2 feet apart for a commercial venture to 6-7 feet apart for an agritourism venture. For the latter, mowed grass is the most common cover between the rows because of the aesthetic outcome. However, lavender doesn't compete well with other plants. A combination with a less nutrient intensive cover crop like clover would be more appropriate for a commercial venture.

During the first year, a weed control system and a drip irrigation system will need to be installed around the plants. The weed control and potential labor associated with this system can easily be reduced by using a fabric, paper or plastic mat to cover 3 feet

around the plant. The drip-irrigation system can be used for fertigation, which combines irrigation and fertilization.

Harvesting must also be done by hand, and harvest time varies depending on the variety and the intended use of the lavender. Lavender products such as dried bouquets and sachets call for a later harvest. Each lavender plant would yield about 4 dried bundles on average, and each bundle would represent around 150 stems. A “debudder” should be used to strip buds off the stems and to clean the buds. Stems and buds will then be fully dried up using a drying shed and dehumidifiers, which will ensure their longevity. If well taken care of, lavender bouquets and sachets of buds can still give off a distinctive aroma after one year.

For essential oil processing, lavender flowers are harvested before their full bloom. Fresh buds must be removed from stems and be distilled after the harvest. Growers could invest in their own small distiller. Half a pound of essential oil requires about 1 pound of dried lavender buds equivalent to the harvest of 3 to 4 lavender plants.

Startup Budget and Projection

The budget is an essential piece of information for growers who intend to establish a lavender business venture. This section will focus on startup costs and considerations to grow lavender on one acre of land and minimally process the stems and buds for future sales.

There is a significant benefit if the grower already has the appropriate land to grow lavender. This would save about one-fourth of the total projected budget for one acre. Equipment is another major part of the budget (Table 1).

Table 1: Projected budget for one planted acre of lavender in Georgia – no financing.

STARTUP Costs	
1 Acre Land (\$4,000 to \$20,000)	\$ 4,000.00
Plants (\$2/plant) (400 plants)	\$ 800.00
Soil Test (\$25/test)	\$ 25.00
Weed Mat (\$105/750 sqft.)	\$ 420.00
Pea Gravel/Mulch	\$ 1,500.00
Lime (\$3.50/40lbs)	\$ 35.00
Drip Irrigation System (\$500/acre)	\$ 500.00
ATV w/ trailer	\$ 2,090.00
Rototiller	\$ 250.00
Startup Labor (Tilling, mounding, mulching, etc.) (\$10/hr) (50 hours)	\$ 500.00
Misc.	\$ 500.00
<i>Subtotal for startup costs</i>	<i>\$ 10,620.00</i>
POST-HARVEST equipment costs	
Drying Racks and Hooks	\$ 300.00
Drying Shed	\$ 5,500.00
Box fan (x2)	\$ 40.00
Dehumidifier (x2)	\$ 260.00
Debudder (\$4,000 to \$8,000)	\$ 4,000.00
<i>Subtotal for post-harvest equipment costs</i>	<i>\$ 10,100.00</i>
TOTAL	\$ 20,720.00
Per plant	\$ 51.80

Fixed starting costs will mainly be on acquiring plants that correspond to an average of 400 plants per acre in Georgia, weed mat, pea gravel, and an irrigation system. The planting population is vastly different from commercial farms in the western part of the country, with up to 2500 lavender plants per acre.

Growers could invest in a drying shed and dehumidifier to fully dry lavender products and ensure longevity. Post-harvest equipment is available to strip buds off the stems and to clean the buds, which is called a “debudder” with a cost ranging from \$4,000 to \$8,000. As mentioned, for essential oil processing, growers could invest in their own small distiller, which may cost from \$8,000 to \$11,000.

Depending on the availability of equipment and supplies, the grower will need to determine their initial production goals. For example, one lavender grower started with only \$1,000 in sales and progressively increased the number of plants and species over the years. Profits made on the first round of harvest, usually after two years of operation, have allowed the grower to invest in more lavender plants, a greenhouse, two used tractors and, a chicken house. However, it did not generate enough to cover salaries in the first few years.

Campbell (2019) showed that the initial investment per plant could range between \$12.83 and \$51.80, depending on the financing opportunities, e.g., small business loans offered by the banking system. After three years, each plant could generate a potential revenue of \$18.53 and after six years, \$42.57 based on the average production of stems. The return on investment for one acre with 400 plants starts at \$4,000 in the second year and culminates at \$17,000 after the sixth year.

Two business models identified in Georgia

Starting their venture, Georgia lavender growers have been relying on mentorship from either western States where lavender grows on a larger scale or from other lavender growers located in the south. The cost of their training and consulting services may vary, but it ensures a good understanding of how lavender could grow under a less favorable climate. It is recommended that growers who seek to market their crops find professional mentorship via consultants or other land grant universities conducting work on lavender. They might also benefit from seeking support from the University of Georgia Small Business Development Centers to define clear business goals and marketing strategies. Based on the study of 12 Georgia lavender farms, two business models are identified: the “lavender passionate” and the “lavender diversified”.

The lavender passionate

The passionate category of growers focuses on lavender as their main crop. They grow on a small-scale with up to five acres, and their business model is based on agritourism activity. All attention is focused on keeping their plants healthy. Lavender is not a low-

maintenance crop, and considerable attention to soil amendments, irrigation, and monitoring for potential diseases must be made to prolong the life of these plants.

If successful, their own lavender products and imported products from France or other U.S. lavender farms are sold directly to customers on-site or online. Lavender bouquets and pot-pourri (dried flowers mixed in a little pouch), anti-aging cream, insect repellent, lavender-inspired jewelry, and lavender-flavored chocolates are examples of the by-products sold by the lavender-passionate growers. They have worked hard to promote their lavender farm brand to the public and gained support by being involved with the National Lavender Growers Association.

An additional opportunity for these growers is to host lavender festivals during the harvest season in early June. As part of the experience and for a small fee, visitors can participate in popular activities such as cutting lavender stems to make a bouquet (U-pick operation), purchasing from other invited craft businesses, listening to music, and eating lavender ice cream. Agritourism with an admission fee allows festival-goers the opportunity to learn about growing lavender and telling the farm story.

Successful Georgia agritourism ventures share some common traits. Location is key not only in terms of being near a bigger tourist center that has regular visitors, but also in terms of management of the festival. Logistical planning requires covering parking, ensuring product inventory, securing employees/volunteers to assist during the festival, and other organizational details. When receiving visitors, growers must be well prepared and insured with an appropriate liability insurance policy. Proper planning for hosting an in-person sales is critical as customer satisfaction is key to its success. From ticket sales to having healthy plants for people to purchase, each part of the process factors into their overall experience and whether they will come back the following year. Lastly, special attention should be focused on informing visitors about what to expect, how to walk between lavender rows, and how to properly cut stems. Proper instructions will allow growers to minimize damage that can be done by visitors to the plants.

The lavender agritourism farm model can be lucrative all year long. Summers are booked with photo shoots for website promotions and weddings. Fall and spring provide

a nice weather window to teach introductory lavender classes, host farm tours, and sell lavender products on-site or online. Working with other local businesses that might use lavender as a product or as an image is an opportunity for cross-promotion.

Restaurants, chefs, wedding planners, and other tourism operations might find lavender as a useful tool to differentiate their business from their competitors.

The lavender diversified

Lavender-diversified growers grow lavender as one crop among a wide portfolio of herbs or specialty crops. On a small or big-scale, these growers focus on nurseries and greenhouse operations that mainly provide live lavender plants in bulk to retailers and landscapers. Their priority is in the diversification of their revenue and the number of buyers. The profitability will depend on how efficient their production operation is to ensure a high survival rate of the plants at the time of sale. From seed, lavender plants may take 1 to 3 months to be ready for transplant. As mentioned earlier, they also need extra care when it comes to soil, irrigation and sun exposure to avoid diseases.

Another hurdle for this venture is the patent protection of most lavender cultivars where propagation can be limited. In the case of a patented variety of lavender, no propagation or distribution is allowed, even for free, without authorization or licensing by the patent holder. A list of patents for *Lavandula* can be found online (e.g., JUSTIA patents, 2023). This may represent an additional cost for the nursery.

Professional and individual buyers are able to purchase on-site or online. The lavender diversified usually have a well-designed website that guides buyers through hundreds of products ranging from seeds to live plants.

Attractiveness and Profitability of Different Lavender Products in Georgia

As previously mentioned, the possibilities of selling lavender products, co-products, and by-products, seem to be limitless. The financial analysis conducted on the lavender farms budget highlights two important points regarding profitability and return on investment. Based on previous budget assumptions with 400 plants per acre, a lavender farm focusing on selling dried lavender starts generating net profits in the

second year with no financing and the third year with financing. The net present value for the dried lavender business model is estimated at around \$35,000 for both no financing and financing at a 7% discount rate over 10 years.

Most common and popular products revolve around live plants, bouquets, sachets, essential oils, culinary lavender, and personal care products. In Georgia, growers identified species that are best suited for the state's climate. *L. angustifolia* (English lavender) is preferred for an earlier blooming, sweet scent and showy flowers. This variety is also most suitable for culinary purposes and aromatic products (Wallin, 2016). Lavender hybrid *Lavendula x intermedia*, also called *lavandin*, has a more medicinal scent. This hybrid is mainly grown for use in personal care products and sachets of buds (Wallin, 2016) that can be placed in closets or drawers as an insect repellent. Hybrids also tend to generate longer stems that make good flower bundles.

Consumers' surveys (Berning et al., 2018; Campbell et al., 2019) point out that essential oil is the most well-known and most purchased lavender-based products in Georgia and neighboring states. While this is the most popular value-added product, the return on investment for growers is not as attractive as the profits that can be generated by minimally processed products such as bouquets, sachets, or jars of culinary lavender. A bouquet of 25 fresh stems sells for between \$5 and \$10 and a 5-ounce jar of culinary lavender is sold up to \$12. In comparison, a 2-ounce bottle of essential oil requiring expensive equipment, a high quantity of supply, and high processing sells for around \$10.

Conclusions

While the commercial lavender sector selling lavender plants in Georgia is small in comparison to the scale observed under more auspicious climate conditions, numerous small farms grow lavender for direct sales to consumers as an agritourism venture. Identifying the potential market and buyers' preferences before planting constitutes the necessary groundwork for the best return on investment. Other skill sets, such as pricing strategies, customer relations, and proper planning, will ensure the success of a venture. Growing lavender can be very profitable. However, this venture can be

challenging until further varieties can be identified or bred to tolerate a subtropical environment like that of Georgia.

Acknowledgments

Insights provided in this article are based on a study conducted between 2015 and 2017 called *Assessing Production Practices, Distribution Channels, and Promotional Tools for Lavender that is Grown in Georgia* sponsored by USDA Specialty Crop Grant program through the Georgia Department of Agriculture (Federal Identification No: 16-SCBGP-GA-0010).

We appreciate all the information provided by Georgia lavender growers involved in this study.

Literature Cited

American Meadows. 2023. *How to Grow Lavender*. Accessed on May 4th, 2023. <https://www.americanmeadows.com/perennials/lavender/how-to-grow-lavender>

Berning J., B. Campbell, and J. Buttshaw. 2018. Assessing consumer demand for Georgia lavender-based products. 2018 *Southern Agricultural Economics Association Annual Meeting*, Jacksonville, Florida, February 3 - 6, 2018.

Beus, C. 2005. Growing and marketing lavender. *Washington State University Extension, Farming the NorthWest Series*.

Campbell, B. 2019. 2019-2020 Lavender budget in Georgia: bundles. *University of Georgia Extension Services*.

Campbell, B., V. Shonkwiler, and J. Berning. 2019. Information sources driving purchasing of lavender products. 2019 *Southern Agricultural Economics Association Annual Meeting*, Birmingham, AL, February 2 – 5, 2019.

Duffey, T. 2023. Growing lavender in Georgia. *Red Oak Lavender Farm Blog*. January 11, 2023. Accessed on May 4th, 2023. <https://redoaklavender.com/blogs/news/ever-wanted-to-grow-your-own-lavender-we-have-a-class-for-that>

Ernst, M. 2017. Lavender. *University of Kentucky Center for Crop Diversification*. Accessed on May 4th, 2023. www.uky.edu/ccd/production/crop-resources/nursery-ornamental/lavender

Hailey, L. 2023. Lavender growth stages: how fast does lavender grow? *All About Gardening*. Accessed on May 4th, 2023. <https://www.allaboutgardening.com/lavender-growth-rates/>

Justia Patents 2023. *Lavandula* patents. Accessed on May 4th, 2023. <https://patents.justia.com/patents-by-us-classification/PLT/445>

Jeffers, S. 2017. *Phytophthora* root and crown rot of lavender: A growing concern. 2017 United States Lavender Conference, Mesa, Arizona, January 26-28, 2017.

Piney Woods Farm 2022. *Lavender fields*. Accessed on May 4th, 2023. <https://pineywoods.farm/on-the-farm/lavender-fields/>

Rittenhouse, T. 2018. Lavender production, markets, and agritourism. National Center for Appropriate Technology through the ATTRA Sustainable Agriculture program, 8 p.

Seabrook, C. 2020. Blue Ridge mountains. *New Georgia Encyclopedia*. Accessed on May 4th, 2023. <https://www.georgiaencyclopedia.org/articles/geography-environment/blue-ridge-mountains/>

USDA ARS. 2023. *Plant Hardiness Zone Interactive Map*. Accessed on May 4th, 2023. <https://planthardiness.ars.usda.gov/>

USDA National Agricultural Statistics Service. 2014. Census of Horticulture. Table 8: Potted herbaceous perennial plants sold: 2014. Accessed on May 4th, 2023. https://agcensus.library.cornell.edu/wp-content/uploads/2012-Census-of-Horticultural-Specialties-hortic_1_008_008.pdf

USDA National Agricultural Statistics Service. 2019. Census of Horticulture Specialties. Accessed on May 4th, 2023. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/Census_of_Horticulture_Specialties/HORTIC.pdf

U.S. Lavender Growers Association. 2023. *Website*. Accessed on May 4th, 2023. <https://www.uslavender.org/>

Wallin, C. 2016. Lavender farming: How to start a lavender business? Profitable plants digest. *Profitable Plants*. Accessed on May 4th, 2023. <https://profitableplants.com/how-to-start-a-lavender-business/>

Westerveld, S. 2016. So you want to grow lavender? Considerations and cautions. *On Specialty Crops*. Accessed on May 4th, 2023. <https://onspecialtycrops.wordpress.com/2015/04/16/so-you-want-to-grow-lavender-considerations-and-cautions/>

Windemuller, J. 2014. Growing a magnificent crop of hardy lavender. *Grower Talks Magazine*. Aug. 27, 2014. Accessed on May 4th, 2023. <http://www.ballpublishing.com/GrowerTalks/ViewArticle.aspx?articleid=20979>