

## Sourcing Vanilla Closer to Home: Market Potential for US Production

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Vanilla (*Vanilla planifolia*), often regarded as a “king of spices,” is a high-value crop with profound cultural, economic, and gastronomical significance worldwide. Known for its unique aroma and versatility, vanilla has been an integral component in industries ranging from food and beverages to cosmetics and pharmaceuticals. Despite its ubiquitous association with everyday staples like ice cream and baked goods, vanilla remains a luxury commodity—second only to saffron in global spice valuation (Spence, 2022), valued at \$600/kg (\$272.20/lb) in 2017 (Khan et al., 2022).

Historically, the first references to vanilla use were recorded in Central America in the humid tropical forests of modern-day Mexico and Guatemala (Correll, 1953; Lubinsky et al., 2008), where indigenous cultures first cultivated and celebrated its aromatic qualities. Over time, this prized crop expanded its reach globally, with Madagascar emerging as the dominant player, responsible for approximately 42% of the world’s supply (FAO, 2025). However, the concentration of production in a few regions has exposed vulnerabilities, including price volatility, supply chain disruptions, and environmental risks like cyclones, which frequently impact Madagascar’s production (Rakoto Harison, Herrera, and Rakotonarivo, 2024).

Today, the United States is the largest importer of vanilla, primarily sourcing from Madagascar, Indonesia, and other tropical regions (UN Comtrade Database, 2025; FAO, 2025). Yet domestic production remains limited, despite favorable growing conditions in territories like Florida, Hawaii, and Puerto Rico.

The broader trade landscape reveals that US specialty crop farmers face a staggering \$64 billion trade deficit in horticultural products—part of a growing agricultural imbalance since 2019 (USDA-FAS, 2025), largely driven by competition from nearby countries like Mexico (Huang et al., 2022). In contrast, vanilla stands out as a high-value crop whose main competitors are distant and

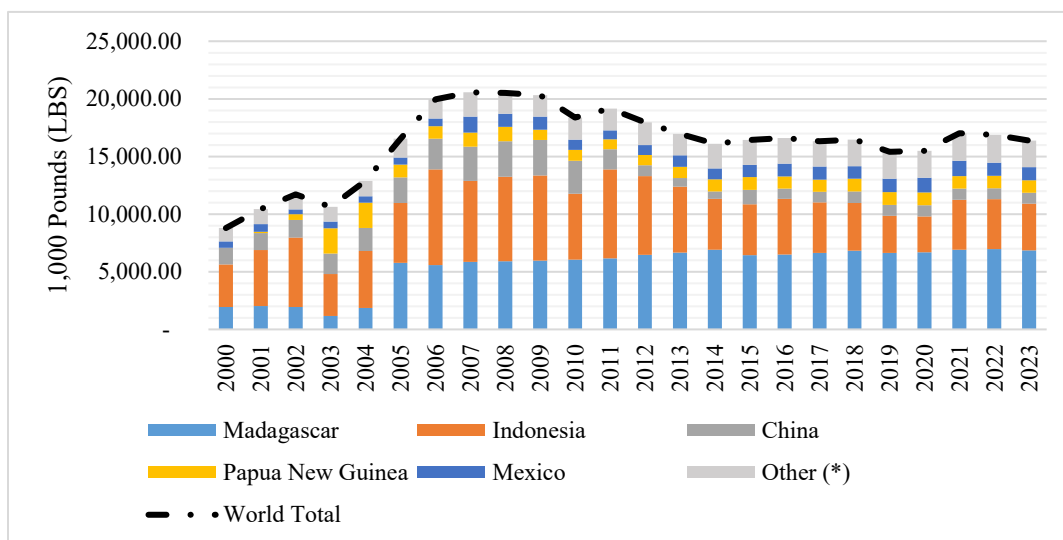
burdened by recurring supply chain disruptions. This raises a compelling question: Could vanilla serve as a viable and profitable alternative for tropical US farmers?

This manuscript offers an overview of the global vanilla market and seeks to evaluate the potential for vanilla production in the United States by examining its historical and contemporary relevance, trade dynamics, and economic implications. It explores the challenges of vanilla cultivation, including labor-intensive pollination, long maturation periods, and market structures, while also assessing the opportunities for creating resilient supply chains and diversifying income for farmers in US tropical agricultural regions. Through this lens, the paper aims to provide insights into whether the United States can establish a competitive edge in this high-value crop market. By exploring these aspects, this publication not only sheds light on the broader context of vanilla’s role in global trade but also offers actionable recommendations for stakeholders interested in fostering a robust domestic vanilla industry.

### Global Market: World Vanilla Production

World vanilla production in 2023 totaled 16.38 million pounds (valued at \$15.7 million), slightly less than the 16.87 million pounds reported in 2022 (a 2.9% decrease). Between 2000 and 2007, world vanilla production grew at an average annual rate of 13.6%, increasing from 8.79 million pounds in 2000 up to 20.56 million pounds seen in 2007, more than double the original production volume. However, between 2007 and 2023, vanilla production declined at an average annual rate of 1.3%, dropping from the peak in 2007 to 16.38 million pounds in 2023. Even with this 20.3% decline from peak production volume, world production of vanilla in 2023 is still 86.4% higher than the production volume reported in 2000. Between 2000 and 2023, 21 countries contributed to the world’s vanilla production. The top five vanilla-producing countries (Madagascar, Indonesia,

**Figure 1. Volume of World's Top Vanilla Producers, 2000–2023 (1,000 lb)**



Source: FAO (2025).

Mexico, Papua New Guinea, and China) account for 85%–91% of the world's vanilla production and have held their top producing and exporting positions for the past 22 years (FAO, 2025).

Although vanilla was originally found naturally growing in Mexico and surrounding Central American countries, vanilla production in this region was surpassed long ago by countries in the tropical zones of the Indian Ocean, with Indonesia leading this time period as the top producing country before finally succeeding its lead position to Madagascar in 2013. Madagascar has since maintained its position as the top producer of natural vanilla.

Between 2018 and 2023, the top five vanilla-producing countries accounted for more than 85% of global production (see Figure 1). Madagascar remained the world's leading producer, contributing 42% of total world production, followed by Indonesia with 24%. Mexico, Papua New Guinea, and China followed with respective shares of 7%, 7%, and 6%.

Madagascar's first major production decline in 2000 led to a sharp increase in world prices, incentivizing other countries to invest in vanilla production—provided weather conditions allowed (Brown, 2009). This investment contributed to a more than twofold increase in global supply over the following years, peaking at 20.50 million pounds in 2007, particularly as Madagascar's production rebounded (given the 3–4 year cycle for a vanilla plantation to start yielding) (De La Cruz Medina, et al., 2009). However, this surge in supply caused a significant drop in world prices, discouraging some new entrants from continuing their investments, leading to a production decline to 16.09 million pounds by 2014.

Another sharp drop in Madagascar's production in 2016 triggered a renewed spike in world prices, once again attracting new producers to the market. This time, global supply remained more stable, as a more diverse group of countries had already established vanilla plantations, leveraging the 2-year vanilla storage period and applying lessons learned from previous market shocks. This helped mitigate extreme fluctuations. As a result, world production remained stable around an average of 16.31 million pounds until 2023, with fewer drastic shifts in supply.

### Top Vanilla Importers

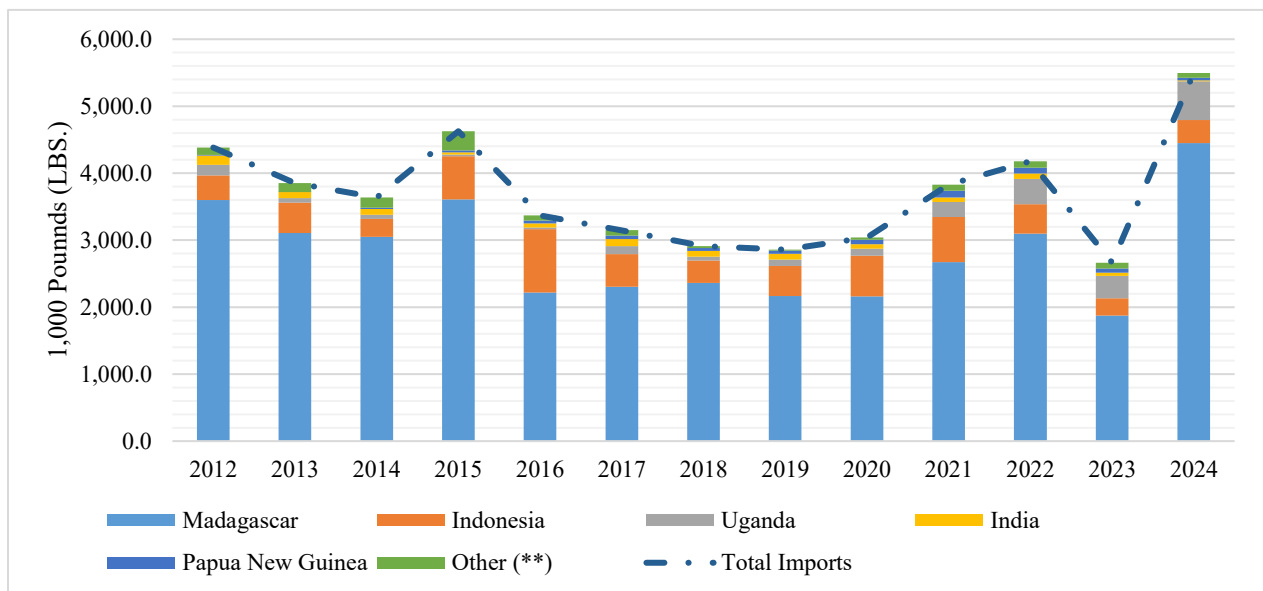
The top three countries importing vanilla (whole and ground) are the United States, France, and Germany, securing a total of 5.49 million pounds of vanilla in 2023 (50.3% of total imports) valued at \$375,236,227 (63.3%). The United States is the top importer of vanilla with 2.83 million pounds received in 2023 (25.9% of total vanilla imports) valued at \$194,351,537 (32.8%). France is the second largest importer with 1.79 million pounds received in 2023 (16.4%). Germany is in third position with imports of 0.87 million pounds received in 2023 (8.0%), followed by Democratic Republic of the Congo (6.7%), and Canada (4.9%). Other importing countries in the top ten include Netherlands (4.6%), Italy (2.9%), Denmark (2.5%), United Kingdom (1.9%), and Belgium (1.9%) (UN Comtrade Database, 2025).

### US Vanilla Production and Trade

#### US Vanilla Imports

The United States has held the title of top world importer of vanilla for over the past 23 years (UN Comtrade Database). A review of the volume of vanilla imported into the United States between 2000–2023 reveals that

**Figure 2. US Vanilla (whole) Imports, Top 5 Countries, 2012–2024 (1,000 lb)**



Source: US Census Bureau Trade Data.

most of the vanilla bean imports (volume) were received from January through July. Figure 2 illustrates trends in US whole vanilla bean imports from the top five supplying countries—Madagascar, Indonesia, Uganda, India, and Papua New Guinea—with Madagascar accounting for 65%–84% (whole vanilla from 2012–2024) of the vanilla imported annually into the United States.

Madagascar has consistently been the dominant supplier, accounting for 76% of total imports, followed by Indonesia at 13%, with both countries together representing nearly 90% of US imports. However, import volumes have fluctuated significantly, with notable peaks in 2015, 2022, and an unprecedented surge in 2024, primarily driven by fluctuations in Madagascar's supply. The decline between 2017 and 2020 was largely attributed to severe weather events in Madagascar in 2016, which disrupted production. As Madagascar's production recovered, imports gradually rebounded, reaching another peak in 2022 before experiencing a sharp drop in 2023 and a dramatic surge in 2024. While Madagascar remains the primary source, other countries, particularly Indonesia and Uganda, have maintained stable but smaller market shares, with India and Papua New Guinea contributing marginally.

## US Vanilla Exports

It is interesting to note that the United States has records for vanilla export (UN Comtrade Data); however, a deeper investigation of the data indicated that these entries were mainly re-exported vanilla with occurrences of domestic exports only appearing in years 2016–2024. Given the difference between US vanilla exports and re-

exports in the previous years, the domestic exports may not have been reported for the years 2000–2015. Moreover, if imported whole vanilla beans are cured domestically before being exported, it further complicates the distinction.

Figure 3 shows the total world volume (in pounds) of vanilla exported from the United States between the years 2000 and 2024. This includes whole and ground vanilla and accounts for domestic exports and re-exports of vanilla from the United States. The volume of US vanilla exports has historically been relatively low, with data indicating that most shipments consist of re-exports rather than domestically produced vanilla. However, a significant shift occurred from 2016 onward, as recorded export volumes began to rise. The surge in exports coincided with historically high global vanilla prices, which peaked at \$600/kg (\$272.20/lb) due to a severe supply shortage in Madagascar caused by extreme weather events (Khan et al., 2022). This sharp price increase, driven by supply disruptions, further incentivized US exporters to expand their re-export activities, capitalizing on the heightened international demand for processed vanilla extracts and value-added vanilla products. An evaluation of the US vanilla production volume would lead one to claim that these domestic exports can be attributed more to additional processing of vanilla within the United States than actual domestic production.

## US Vanilla Production

The story of vanilla production in the United States has been a short one. Historical evidence shows producers reporting yields of this tropical crop in Florida, Hawaii, and Puerto Rico. Records dated before World War I

**Figure 3. Volume of US Vanilla Exports, 2000–2024 (1,000 lb)**



Source: UN Comtrade Data.

reference vanilla fields at the Federal Experiment Station in Puerto Rico with work focused on *Vanilla planifolia* establishment. Once in production, experiments and subsequent recommendations were made in the areas of establishing a vanillery, propagation, plant care, pollination, curing, and preparation for the market. As a result, a few commercial vanilleries and a grower's association were developed with 434 acres in production in 1940 before vanilla production ceased in the early 1950s (McClelland, 1919; Childers, 1948; Wu et al., 2024). Even old USDA Farm Service Agency records show vanilla as an eligible crop under their Noninsured Crop Disaster Assistance Program (NAP) and Tree Assistance Program (TAP), although this is currently not the case. Yet pockets of US vanilla production remain, where a handful of growers are cultivating this crop in Hawaii and Puerto Rico (Wu et al., 2024). The Hawaii Tropical Fruit and Crops Report completed for the USDA National Agricultural Statistics Service (NASS) in 2016 shows a snapshot of the state's vanilla production with a total of 77,000 plants, of which 15,000 were harvested to produce 490 pounds of vanilla (3% yield) commanding a price of \$6.73/lb (USDA-NASS, 2017). Subsequent reports in 2018 and 2021 still count vanilla production as one of their tropical specialties. However, the number of producers in Hawaii has decreased, requiring that their production volumes be grouped with unpublished/other tropical specialty crops, citing confidentiality concerns for individual operations (USDA-NASS, 2020, 2023). According to Wu et al. (2024), among US territories, Florida shows a strong promise for commercial production. This perspective is informed by the decline of vanilla cultivation in Hawaii—now largely limited to agritourism—and the discontinuation of small-scale experiments in Puerto Rico following World War II (Bayman, 2018; Wu et al., 2024).

## Trends in US Vanilla Import Prices

Analyzing vanilla price trends is crucial for assessing the economic viability of Florida-grown vanilla, as fluctuations in global prices directly impact potential revenues and investment decisions for new domestic producers.

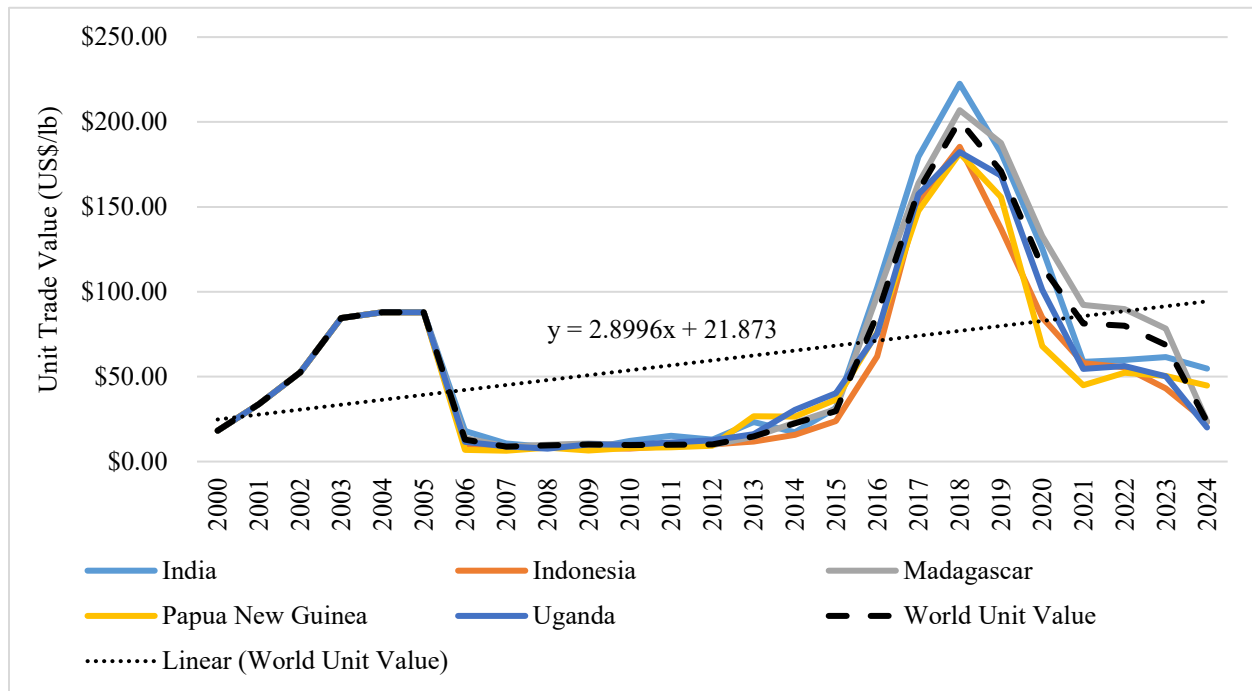
Figure 4 illustrates the evolution of the vanilla import unit value into the United States, serving as an approximation of the world price of vanilla from 2000 to 2024. Over this period, the world price averaged \$131.33/kg (\$59.57/lb), with a minimum of \$19.36/kg (\$8.78/lb) in 2007 and a maximum of \$442.65/kg (\$200.78/lb) in 2018. The overall trend indicates a steady increase, with an average annual rise of \$6.39/kg (\$2.90/lb). When adjusted for inflation, the deflated unit value confirms this upward trend, reflecting an average annual increase of \$4.71/kg (\$2.14/lb).

The vanilla world price experienced two significant peaks: one between 2001 and 2005 and another from 2016 to 2020. These spikes correspond to sharp disruptions in Madagascar's production and supply due to severe weather events. Such price fluctuations create incentives for other countries to enter the vanilla market, either by increasing production—when conditions allow—or by importing and re-exporting at a higher value. This pattern was notably observed in the United States after the 2016 price surge, with re-exports continuing until 2024 (Brown, 2009).

## Vanilla Cultivation Potential in United States (SWOT analysis)

A SWOT (strengths, weaknesses, opportunities, threats)

**Figure 4. US Vanilla Import Unit Value (US\$), 2000–2024**



Source: UN Comtrade Data.

analysis is a strategic planning tool used to support decision-making by evaluating a business’s internal and external environments. It helps identify the strengths and weaknesses within their internal environment as well as opportunities and threats they face in the external environment. It serves as a guide to assess an organization’s position before implementing new strategies, allowing the organization to build on what they do well, address what is missing, seize new openings, and minimize risks (US Economic Development Administration, 2025).

### Strengths

US tropical growers can rely on significant strengths supporting vanilla cultivation. The region’s location within the tropical zone, which is ideal for vanilla production, similar to major vanilla producers: Madagascar, Indonesia, and Mexico. Establishing vanilla production in the tropical regions of the United States could enhance supply chain stability and responsiveness by reducing dependence on volatile international markets. Current imports, primarily from Madagascar and typically transported by sea, are frequently subject to price fluctuations, logistical disruptions, and environmental risks such as cyclones that regularly impact Madagascar’s production (Rakoto Harison, Herrera, and Rakotonarivo, 2024). In contrast, locally grown vanilla could provide faster farm-to-market access, resulting in fresher and potentially higher-quality beans compared to imports, which often endure prolonged transit and storage periods (Vittekk, 2023).

Another notable strength is the existing presence of a well-established vanilla processing industry in the United States, including major companies like Mars, Hershey, and Nestlé. These processors currently depend on imports and could benefit from a more stable, domestic supply—particularly to reduce logistic risks associated with shipping delays and global supply shocks (Rakoto Harison, Herrera, and Rakotonarivo, 2024).

Additionally, the US vanilla supply chain offers greater capacity for traceability, which provides an appealing alternative for buyers concerned about production transparency and compliance with sustainability and certification standards—issues that often affect traditional producing countries (Brownell, 2018; Hänke, 2019)

Furthermore, US vanilla cultivation is supported by ongoing research and innovation, particularly at the University of Florida, where efforts are underway to develop unique flavor profiles and adopt controlled-environment agriculture systems (Rusnak, 2023; Advanced Biotech, 2024). These innovations could allow US producers, especially in Florida, to differentiate their products, target premium markets, stabilize supply chains, and improve production efficiency while mitigating climate-related risks.

### Weaknesses

However, the availability and price of purchasing land in tropical United States—particularly South Florida and

Hawaii—can be prohibitive for some growers (UF/IFAS, 2023; Landsearch.com, 2025), which in itself is a weakness. In addition, vanilla vines are propagated through clippings, and finding a consistent supplier for quality clippings may require persistence. Moreover, agricultural labor shortages could present a significant challenge for vanilla cultivation in South Florida (Biswas, Wu, and Guan, 2018). Commercial vanilla farming is notably labor-intensive, primarily due to the necessity of hand-pollination. Each flower must be pollinated manually within a narrow time frame, requiring a skilled workforce to monitor plants daily throughout the flowering season to ensure successful bean production (Fair Labor Association, 2021; Wurz et al., 2021; Wu et al., 2024). Given the existing agricultural labor shortages in the United States, securing sufficient skilled labor for these tasks can be difficult.

## Opportunities

Despite the challenges, several compelling opportunities support the adoption and expansion of US domestic vanilla production. First, the United States has demonstrated consistently strong demand for vanilla over the past 2 decades, as evidenced by import trends. Second, vanilla continues to command high market prices, driven by its limited global supply and premium value. Third, the leading vanilla-producing countries—such as Madagascar and Indonesia—are located in regions prone to extreme weather events like cyclones, which regularly disrupt supply chains, contribute to price volatility, and lead to inconsistent product quality. This seasonal vulnerability—especially the risk of cyclones disrupting harvests and shipments—creates an opportunity for US growers to establish a more resilient, countercyclical supply chain. With nearly 42% of global vanilla originating from Madagascar, the global market is highly sensitive to weather-related shocks. On average, Madagascar experiences two cyclones per year, with the most severe events having historically caused significant declines in global vanilla supply (ACAPS, 2024).

Additionally, in response to the rising consumer demand for natural and organic products, major US food manufacturers, including Nestlé (2015) and Hershey, have committed to eliminating artificial flavors from their products (Bomgardner, 2016). This shift has significantly increased the demand for natural vanilla, reshaping market dynamics and driving price fluctuations. Moreover, there is a growing emphasis on sustainable and ethical vanilla sourcing, with US companies and international organizations partnering to promote fair trade practices, enhance the livelihoods of vanilla farmers, and support environmental sustainability in producing regions as seen with the Sustainable Vanilla Initiative (SVI) launched in 2015 (Fair Labor Association, 2021). These heightened production and quality standards are poised to further impact market dynamics and pricing, potentially challenging traditional global producers to meet evolving consumer and regulatory expectations. This shift creates a greater opportunity for

the United States to establish a more traceable and high-standard vanilla production system, catering to premium markets and strengthening its competitive position in the US vanilla market.

An additional opportunity for US and Florida-based vanilla producers lies in strategically aligning their production and market entry with seasonal import trends. While vanilla is grown in tropical regions worldwide and shares similar growing calendars, enhanced planning of domestic production and supply chain logistics coupled with the University of Florida breeding efforts (Rusnak, 2023; Advanced Biotech, 2024) can offer a competitive advantage. Specifically, targeting periods of reduced import volumes—particularly from October to February—can enable US growers to market their product when foreign supply is lower, potentially securing higher prices.

As illustrated in Figure 5, which presents average monthly US imports of whole vanilla beans from 2022 to 2024, import volumes are heavily concentrated in the first half of the year, peaking in spring and summer. This pattern corresponds with the production and export cycle of Madagascar, the world's dominant vanilla supplier, whose harvest concludes just before the annual cyclone season (December to April). The curing process typically ends in late fall, followed by bulk exports starting around March–April.

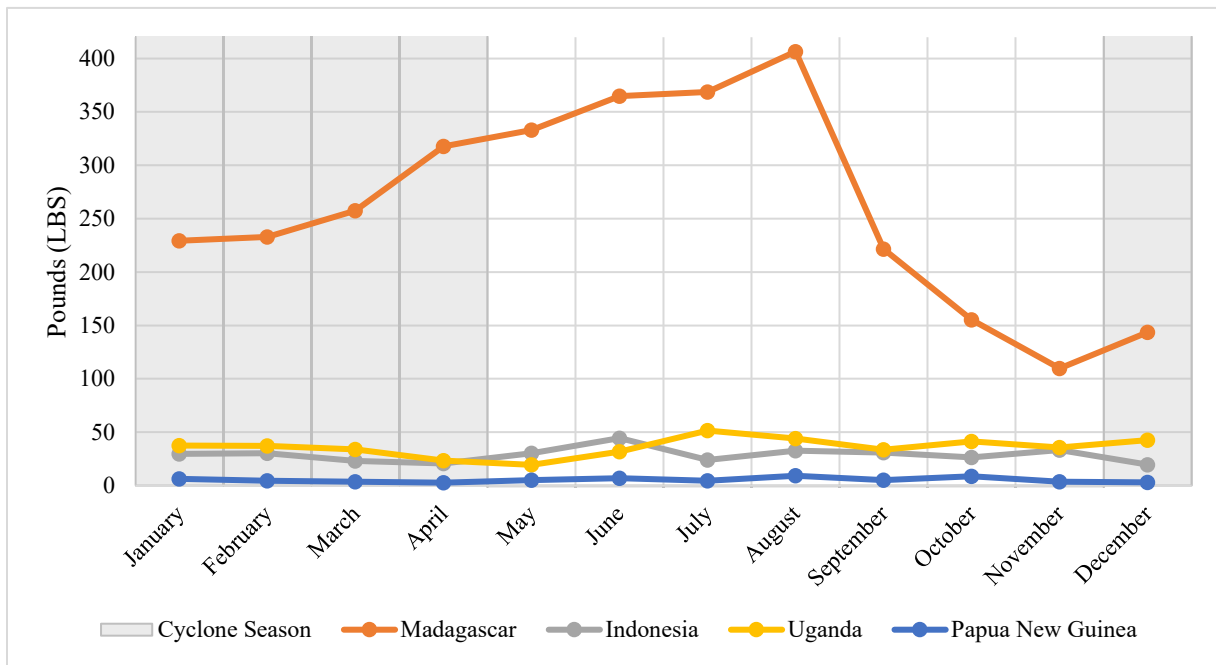
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By strategically timing production to coincide with dips in global imports and mitigating risks tied to offshore production, US tropical growers can position themselves as reliable suppliers during periods of scarcity. This not only allows for price premiums but also strengthens the case for developing a localized, climate-resilient vanilla industry in the United States.

## Threats

While numerous opportunities exist for cultivating vanilla in the United States, growers must also carefully consider several significant threats and risks. Susceptibility to hurricanes, flooding, and tropical storms can severely damage crops and infrastructure (Florida Climate Center, 2025), causing economic losses and production disruptions. Additionally, vanilla orchids are susceptible to diseases like root rot and Fusarium wilt, as well as pests such as vanilla bean borers (Hernández-Hernández, 2018; Wu et al., 2024), which necessitates developing local expertise to manage these

**Figure 5. Average Volume of US Vanilla (Whole) Imports by Month, 2022–2024 (lb)**



Source: US Census Bureau Trade Data.

issues effectively. New growers also would face intense competition from established global producers in Madagascar, Indonesia, and Mexico (Figure 2 and 4), which together account for 85% of global output, with Madagascar alone contributing 42%, combined with the close alignment between global prices and those set in Madagascar, suggest that these established producers, particularly Madagascar, may not be merely price takers. Rather, they are likely to function as price makers with significant influence over both global supply and pricing dynamics in the vanilla market. Furthermore, vanilla markets exhibit considerable price volatility (Figure 4), adding to financial uncertainty. Lastly, the crop’s lengthy maturation period of 2–4 years necessitates substantial upfront investment, delaying returns and heightening financial risk for new producers.

## Recommendations/Takeaways

Building a successful vanilla industry in the United States will require a strategic, phased approach that leverages existing strengths while proactively addressing known challenges. Based on the SWOT analysis, the following recommendations and takeaways are proposed:

### (1) Differentiate Through Quality and Traceability

US growers should prioritize producing traceable, high-quality vanilla beans with unique flavor profiles supported by university-led breeding programs. Emphasizing freshness, sustainable practices, and transparent sourcing can position US vanilla competitively in premium and niche markets

(Hevesh et al., 2025; Boone, Kaila, and Sahn, 2023).

### (2) Time Production with Global Supply Gaps

Aligning US harvest and market entry with seasonal import troughs—particularly from October to February—can allow growers to capitalize on periods of reduced global supply and higher prices.

### (3) Address Structural Weaknesses

High land and labor costs can be mitigated through cooperative models, workforce training in hand-pollination, and investment in local propagation infrastructure to ensure reliable planting material.

### (4) Mitigate Production Risks

Adoption of protected cultivation systems (e.g., shade houses or greenhouses) and integrated pest and disease management will be essential to reduce climate and biological risks (Hernández-Hernández, 2018; Wurz et al., 2021; Vittek, 2023; Wu et al., 2024). Diversified tropical farming systems (e.g., alongside bananas or cacao) can help stabilize income during the crop’s long maturation phase.

### (5) Strengthen Financial and Institutional Support

To manage financial risk and delayed returns, growers should utilize USDA-backed insurance and risk management programs (USDA-RMA,

2025), explore forward contracts, and seek cost-share grants for specialty crops. Encouraging the formation of a growers' association could further facilitate coordination, shared learning, and market development.

#### (6) Engage in Value-Added Processing

Processing vanilla locally (e.g., extraction, curing, branding) can capture additional value and reduce exposure to volatile raw commodity markets (Babcock, 2015; Siegle et al., 2024). Differentiated, branded products can also help secure long-term relationships with US food and flavor manufacturers.

By taking these steps, the United States—particularly regions like Florida—can develop a resilient, high-value vanilla sector that contributes to domestic supply stability, supports sustainable agriculture, and enhances global competitiveness.

## Concluding Remarks

The analysis of global vanilla markets and the historical dominance of Madagascar highlight both the opportunities and challenges associated with increasing US vanilla production. While the United States remains the world's largest importer of vanilla, the country has yet to fully leverage its tropical agricultural regions to establish a competitive domestic vanilla industry. South Florida, Hawaii, and Puerto Rico offer suitable climatic conditions for vanilla cultivation, and expanding production in these regions could reduce dependence on

volatile international markets, enhance supply chain resilience, and capture a share of the growing demand for sustainably sourced, high-quality vanilla. However, the economic viability of large-scale vanilla cultivation in the United States requires further investigation, particularly concerning production costs, labor availability, and market positioning relative to major global producers.

To justify investment in domestic vanilla production, comprehensive economic evaluations must be conducted to assess potential profitability, considering input costs, yield expectations, and price volatility. Key factors such as the labor-intensive pollination process, long maturation periods, and land costs in tropical US regions must be weighed against the premium prices fetched by high-quality, traceable vanilla. Additionally, marketing strategies should focus on niche markets, such as organic, fair-trade, and sustainably produced vanilla, where US growers may have a competitive advantage. Notably, recent findings suggest that US-grown vanilla products are well-received by consumers, with evidence of a willingness to pay premium prices for domestically produced vanilla flavorings (Hevesh et al., 2025). Future research should explore innovative cultivation techniques, cost-effective production models, and the feasibility of integrating vanilla into diversified farming systems. By addressing these challenges, US growers could capitalize on a lucrative market opportunity while contributing to a more stable and diversified vanilla supply chain.

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