

IFEAT

# SOCIO-ECONOMIC REPORT ON VANILLA

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*V. planifolia*,  
Family: *Orchidaceae*

## INTRODUCTION

Vanilla is recognised as one of the world's favourite flavouring (and to a lesser extent, fragrance) ingredients. It is available in a variety of forms, both natural and synthetic. Natural vanilla is one of the most complex of flavouring ingredients, not only in terms of growing and processing but also in terms of its complex flavour profile with over 400 flavour compounds being detected. A

key feature of natural vanilla is the sizeable market volatility arising from climatic variations as well as political and speculative activities, each of which can severely influence prices and availability.

This profile concentrates predominantly on natural vanilla although the much more dominant and cheaper is synthetic vanillin usually obtained from guaiacol/catechol derivatives and other smaller starting materials such as wood pulp and a variety of other sources.

Given the trend towards natural flavours, combined with high natural vanilla prices, some companies are producing natural vanillin from sources other than vanilla beans. An expanding source of supply is from clove giving eugenol or vanillin bioconversion processes using raw materials such as ferulic acid from rice bran oil. Recent high and unpredictable vanilla prices, led to the re-formulation of products and the development of "natural" and "nature identical" vanillin substitutes.

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**1. VANILLA ORCHID VINE**

### USES AND CONSUMPTION

Natural vanilla is available in a variety of forms. Beans are mainly used in bakery products, ice creams, desserts, and smoothies but are also vital in cosmetic and personal care products, including anti-aging creams, moisturisers, and various ointments as well as being used in aromatherapy. Whole vanilla beans are expensive and are used in gourmet and premium food products, a segment that suffered during the pandemic.

Vanilla has widespread uses in commercial and domestic baking, ice cream, beverages, confectionery, perfume manufacture, and aromatherapy. One major F&F company estimated that at least 18,000 global products contain vanilla flavour and many new flavour and fragrance combinations are being developed for vanilla.

Vanilla has also been used in some iconic perfumes.

The various forms in which natural vanilla is available include whole beans, a range of extracts, powder, oleoresin, paste, and sugar, but rarely as an oil. Vanilla beans are available in a variety of grades depending on origin. Thus, vanilla grades from Madagascar, the dominant producer, include black gourmet beans, red split and non-split, European, and American grades; each having their own market and end uses. In addition, there are organic, fair-traded, and other forms of certified vanilla.



**2. GREEN VANILLA BEANS**

In normal years, global consumption of natural vanilla is estimated between 2,000 – 2,500 metric tonnes (MT). Over the past few years, despite the price hikes, the demand for vanilla beans has witnessed something of a renaissance. In part, this is due to consumers' increasing preference for natural food and beverages. In 2015, a few large food brands, such as Nestlé, Kellogg's, General Mills, and Hershey vowed to use only natural flavours and remove partly the artificial ingredients from the products marketed in the USA. This coincided with the substantial downturn in natural vanilla production leading to a dramatic price hike. Food makers, flavour houses, and other vanilla users faced a variety of challenges regarding product reformulation, labelling, and defining what is "natural". Despite the record high prices, demand for some vanilla grades remained strong and enough to support the high prices during 2016 - 2022. Thus, in the USA, for many foods and particularly ice cream, when a product is labelled vanilla, only real vanilla extract can be used and WONF (with other natural flavours) has limited usage. This means it is very hard for some food categories to utilise flavour technology solutions to reduce cost fluctuations. This keeps demand high even when prices increase.

### VARIETIES

Vanilla is from the orchid (Orchidaceae) family and there are over 100 identified different vanilla genera, but only a few are used in vanilla production. Vanilla is the only



**3. VANILLA FLOWER**

orchid to produce an edible fruit for human consumption, as well as being the only crop that needs to be pollinated. Vanilla is always propagated by stem cutting and the vine requires support since it is an evergreen orchid that can reach a height of several metres. The flowers must be hand pollinated and can only be pollinated for a few hours each day. Flowering only occurs for a few months during the year depending on local conditions. Moreover, farmers need to hand pollinate approximately 600 flowers to produce 1 kg of vanilla bean.

The most widely used species are *V. planifolia*, grown in Madagascar and other Indian Ocean islands as well as Indonesia, Mexico, and Uganda. There are several varieties and botanical origins. Some vanilla, particularly that from Tahiti and Papua New Guinea (PNG), is from *V. tahitiensis* which has a different flavour profile.

### QUALITY

Vanilla beans differ in chemical, physical and organoleptic properties not only according to the species, but also within a species, depending on the geographical source and the physical form or grade. Consequently, preferences are expressed by consumers for particular types for certain applications. A vanilla bean is only 2% flavour and aromatic substances, the remaining 98% is water, fats, waxes, sugar, cellulose etc. The 2% is made up of 90% vanillin, 9% vanillic acid, p-hydroxybenzoic acid, p-hydroxybenzene and the remaining

1% is 400 flavour substances. While vanillin is characteristic of vanilla flavouring, the trace flavouring components highly differentiate natural vanilla.

Quality can be influenced by market price. Very high prices can lead to early harvesting of immature beans along with inadequate processing. In addition, the prevalence of significant risk of theft of green beans at farm level forces some farmers to harvest immature beans. Women and young people have been vulnerable to these kinds of threats which include farm level theft and armed robbery during transportation. The precursors of the key aroma compounds developed in the curing process only build up in the fresh bean in the last 1-2 months before maturity, so early harvesting leads to low levels of precursors, and the cured vanilla has little or no aroma, which is the critical quality parameter. Larger crops usually lead to lower prices, facilitating better production and processing and improved qualities. Ideal vanilla curing ratios would be 5 kg green to 1 kg cured but are more commonly 6 to 1 kg. The ratio rises to 7.5 or 8 kg to 1 kg for very early harvested immature beans, substantially reducing vanilla bean quantities and encouraging further price increases.

However, in recent years there has been increasing optimism regarding the better harvesting and processing practices being adopted, facilitating higher quality production. Factors cited for the improvement include improved discipline among buyers, stronger government enforcement, reduced incentives to pick early, and improved education programmes. Also, rural communities in Madagascar have been more able to control the theft of green vanilla,

despite high prices, possibly in part because of the reduced demand for quick cured vanilla. It has been customary for farmers to make distinguishing prick marks on green pods to try to ensure against theft.

### HARVESTING, PROCESSING METHODS, YIELDS, AND LABOUR INPUTS

Most of the world's natural vanilla is produced by smallholders from the orchid *V. planifolia*, (also known from some origins as bourbon vanilla). Although vanilla can be propagated from seed, in practice it is always done by means of stem cuttings conveniently taken during annual pruning. Once established vanilla requires constant maintenance. Vanilla vines take a long time to reach maturity, bearing fruit and flowers after 3-4 years, followed by rising yields, and then vines are abandoned after 10-12 years. From flowering to harvesting is approximately nine months. Thus, production cannot easily adjust to market requirements. The pods are harvested by hand and should be picked when they begin to ripen as the tips become yellow. Harvesting is usually once a year but in Uganda there are two harvesting periods in June/July, similar to Madagascar, and in December/January.

Vanilla orchids are very sensitive to disease and this makes it very difficult to develop large-scale plantation production. This helps to ensure large supply/demand imbalances, as small farmers cannot adjust easily to market changes. This sensitivity can lead to significant production losses and since the replacement cycle for new plantings involves several years, lower supply can exist for several years.

Processing of vanilla involves the conversion of an unflavoured green pod into a universally recognised and popular distinctive aromatic ingredient. The bourbon curing method is the dominant method used in Madagascar, Uganda and Comoros and is a complex labour-intensive process undertaken over a period of approximately three months. All the beans brought to the curing factory are sorted by colour, reflecting maturity and length in order that they can be processed, which involves six different phases:

- **Blanching (or wilting or killing)** - the sorted beans are put into hot water (c.65°C.) for 2-3 minutes to stop further vegetative development and initiate the enzymatic process responsible for the production of the aroma and flavour.

**VANILLA FLOWER**

- **Sweating** - the hot beans are placed into large insulated boxes for 2-3 days and develop a deep brown colour and become a more supple and develop an aroma.
- **Sun drying** - the sweating boxes are opened and the beans are sun-dried for one hour every day for about 10 days.
- **Shade drying** - the beans are sorted and shade dried for one month.
- **Grading and packaging** - grading is undertaken by (i) colour (black for gourmet, red for extraction), (ii) sorting into whole, split, and cuts (bulk) beans, and (iii) length - the whole and splits are subdivided according to length.
- **Maturing** - the vanilla beans are wrapped at the right temperature in wooden boxes and with the right moisture level are stored for 3-9 months to permit the full development of the desired fragrance.

The classic processing ratio is 5:1. That is, about 5 kg of fresh green vanilla beans give 1 kg of cured bean and 1 kg of cured bean will have some 250 to 300+ beans, depending on size. This number of flowers will have had to be hand pollinated, since each pollinated flower yields one green bean. However, the ratio of fresh to cured will rise if harvested immature – up to 8:1. Most of the processing is done locally and methods differ somewhat between origins.

Yields can vary considerably. A good vanilla operation can yield between 500 - 800 kg of cured beans per hectare (ha) per year during a plant life of seven years. However, if not processed correctly then both yields and quality can be lower. Curing is critical alongside ensuring the green beans are fully matured when harvested. When prices increase stealing beans increases, leading to early picking and lower quality.

Considerable efforts have been made to modernise and standardise both growing and processing but, as yet, modern agro technologies have either not been developed or have been unsuccessful. For example, in Madagascar some large collectors have vacuum-packed partially cured beans to maintain moisture in anticipation of higher prices later in

the year, but this practice can lower both quality and yields. Similarly, techniques for quick curing of green beans, as well as green bean extraction and fractionation, have been developed but the jury is still out on the benefits of these initiatives. In the 1970s the American spice company McCormick developed an alternative method which it tested in Uganda involving using cut beans instead of whole beans. These are killed, sweated, and dried in a forced-air drier. The whole process took about a week. This is followed by conditioning for a further three months. The final product is only suitable for sale to extractors.

**Labour Inputs**

Vanilla is labour intensive and requires specific skills. Vanilla cultivation (i.e., pollinating, weeding, pruning, and harvesting, but excluding land clearance and planting) is estimated to need 400 days per year per ha. Similarly, the nature of the curing process combined with the need for continual manual inputs is labour intensive. A unit capable of handling 5 MT of green beans per week needs to employ approximately 20-30 people, although not all full-time.

**MAJOR PRODUCERS**

Natural vanilla originated in Mexico, where it was naturally pollinated by bees, and was used by the Aztecs. During the past two centuries, production spread worldwide once it was discovered that hand pollination of the flower was required outside Mexico. The difficulty of growing and curing the green orchid to produce vanilla beans, involving substantial labour inputs, means that production is concentrated in tropical countries with low labour costs. The high price of vanilla has proved to be initially attractive to many small farmers in the tropics but the complex nature of growing, harvesting, and processing invariably leads to many more failures than successes.

Precise production data on vanilla are not available for several reasons, including the protracted processing involved after harvesting, variable levels of stock held in producing countries, and the secretive nature of the sector. Export data are often used as an approximate guide to production levels.

Madagascar accounts for 60% to 80% of global production depending on its annual production with Papua New Guinea, Indonesia, Uganda,

and Comoros being other sizable suppliers. In addition, there are some other smaller producers including India, Israel, Mexico, Réunion, Sri Lanka, Tahiti, and Tonga. There has been talk recently of India and Sri Lanka becoming larger producers but, as yet this has not materialised. In recent years increased investments are being made to produce vanilla using biotechnology. Due to the plant sensitivities, developing significant new production can be very challenging.

**Madagascar**

Vanilla production is dominated by Madagascar, with production concentrated in the north-eastern Sava region, around the trading centres of Antalaha, Andapa, Sambava, and Voahangrife, where vanilla monoculture is practised on an estimated 24,000 ha of land. This is where the best growing conditions exist and are combined with the availability of low-cost labour. Moving southwards, vanilla production decreases through the prefecture of Fénérive and Tamatave and is least around the southerly towns Vatohamady and Mahanoro. In total, a further 4,000 - 5,000 ha of vanilla are under cultivation. Vanilla flowers are pollinated between May and August with most being harvested in July and August the following year and available for export from November until April.

Madagascar's dominance of world vanilla supply means that prices are dominated by the pronounced crop cycles in Madagascar. Output from other countries is insufficient to counteract these cycles. In 1991, Madagascar and Comoros abandoned vanilla bean export quotas and the associated buffer stock system that had helped stabilise vanilla prices around USD \$75/kg since the 1960s. Thereafter, stocks were liquidated and prices fell. The 2002/3 "perfect storm" of a poor crop combined with a cyclone led to prices rocketing to \$450/kg, encouraging production expansion and substitution. So, from 2004 to 2014 there was a period of excess supply and prices ranged from a low of \$30 to a high of \$80. From 2014 onwards, a combination of reduced production, falling stocks, increased demand, large crop pre-financing along with speculative activity, saw prices soar to \$225 in mid 2015 with further rises the following year. Further upward price pressure continued following Cyclone Enawo



on 7th March 2017, the worst cyclone for 13 years. Prices escalated to \$600/kg, following initial concerns of sizeable crop losses. Certainly, a lot of Madagascar's premature green beans fell off the vines. However, prices stabilised or fell later in the year, as estimates of cyclone damage fell to an estimated 25-30% of the anticipated crop. Also new plantings coming onto the market were helping to stabilise prices. However, production shortfalls after 2015 led to the liquidation of most carryover and many speculative stocks leading to further price rises and volatility. Another problem is the opaque nature

of the vanilla market, with export trading being concentrated in a few powerful hands and a lack of market transparency.

Madagascar's vanilla crop in 2021 turned out to be a bumper crop. Initially thought to be between 2,000 and 2,300 MT, an estimate based on trade data from the two major exporting ports of Sambava and Antalaha, combined with additional exports from the ports of Tamatave and Diego Suarez, as well as air-freighted vanilla plus carryover stocks, suggested it may be closer to 3,000 MT.

Crop estimates are often conflicting in part because of erratic weather conditions. There is no doubt that global warming is increasingly impacting the vanilla growing areas of Madagascar. The region's susceptibility to climatic variations, including cyclones, hot and dry conditions, and heavy rainfall can lead output to fluctuate considerably. Moreover, cyclones can also impact quality with fallen immature green beans often being cured immediately. For example, in 2022 there were conflicting estimates in part based on trying to assess the impact of erratic weather conditions. The closing months of 2021 saw weak flowering leading to predictions of a smaller crop and upward price pressure. Flowering peaked in October 2021 and the final two months of 2021 saw reduced rainfall, which arrived too late to avoid a significant flower drop. Some sources suggest a production shortfall of "several hundred tonnes" but even so the 2022/23 crop was still substantial and estimated at more than 2,000 MT, possibly because of late flowering, alongside abundant rain, and improved yields.

Vanilla is so important to Madagascar's economy in terms of employment and export earnings that the government is closely involved in the sector. There are a series of rules and regulations such as opening harvest dates, closing export dates, export pricing, and repatriation of earnings. This involvement, combined with the level of enforcement, adds to the lack of transparency and opaqueness of the market. Vanilla production and trading in Madagascar is a complex operation.

**Indonesia**

Until recently, Indonesia was considered the second largest vanilla bean producer, with Bali and South Java the primary production areas. Recently production has spread to Sulawesi, Sumatra, Lombok, and Flores. However, some PNG vanilla is being offered as Indonesian vanilla, despite these origins having their own distinct characteristics. Indonesian production methods focus on quantity over quality with short cuts being used in harvesting, curing, and drying. Indonesian vanilla has a sharper, woodier flavour than other varieties and usually sells at a lower price.

Indonesian vanilla has different flavour and fragrance characteristics than

INDONESIA GROWING AREAS – AND NEIGHBOURING COUNTRIES 2021 (FROM INDESSO)



SOCIO-ECONOMIC REPORT ON VANILLA

Madagascan vanilla, and its industrial grade is the preferred vanilla for blending with neighbouring PNG extraction grade. The continued import of PNG vanilla makes it difficult to estimate production but the high prices of recent years led to efforts to expand production and some sources suggested Indonesian output in 2022 could be as high as 300 MT compared with estimated output in 2017 of between 80 – 150 MT.

Unlike Madagascar, Indonesia's vanilla market is a free market with minimal government interference. As with other vanilla growing countries, the Indonesian industry faces several challenges, including natural disasters, such as cyclones, landslides, higher freight costs and reduced shipping availability due to the COVID-19 pandemic, and some early harvesting because of higher prices.

**Papua New Guinea (PNG)**

PNG produces both *V. tahitensis* and *V. planifolia* vanilla beans in a diverse range of qualities. Overall, average quality has improved in recent years, but sizeable amounts of substandard *V. planifolia* are on the market. There are still no real quality standards and moisture and vanillin contents can be very inconsistent. On the ground little microbiological analysis and pesticide testing is undertaken. The *V. tahitensis* vanilla dominates the retail and institutional sector markets. As food safety standards become more rigorous this lack of testing and quality standards will create greater challenges for PNG vanilla in the

food formulation markets in the years ahead.

PNG is an important supplier of gourmet vanilla beans into the food service and tourist sectors but the COVID-19-induced collapse of these markets led to these bean types being further dried to produce industrial vanilla. PNG industrial vanilla is now readily accepted by major industrial users in North America, Europe, and Australia, while some of its higher quality black/gourmet vanilla is imported into neighbouring Indonesia for mixing with local production.

In recent years vanilla production in PNG and particularly the Sepik regions has been expanding, encouraged by high global prices. Between 50% to 75% of PNG vanilla production originates in the regions of East Sepik and Sandaun (formerly West Sepik), bordering the Indonesian province of Papua. Most of PNG's vanilla trade is done through informal channels through Indonesia, which is an important market. Indonesian dealers finance some PNG growers and collectors, and the product is smuggled to Indonesia, which does not help PNG exporters. In 2020 the border with Indonesia was closed, reducing the amount of trade. Some vanilla is smuggled but there is a procedure for exporting legally and some vanilla imports are recorded in Indonesian trade statistics.

Transport logistics in PNG are notoriously difficult and the recent pandemic further aggravated these problems. Air freight rates rose three-

fold and the transport system remains highly fragmented. Compared with many products, the high unit value of vanilla combined with its non-perishability, relatively easy transportability and PNG's suitable agro-ecological growing conditions have facilitated an expansion of production. While production and trade data are difficult to obtain, production in 2021 was estimated at 300 MT and a similar amount was predicted for 2022.

**Uganda**

Uganda began vanilla production in the 1930s but exports were insignificant until the 1970s when an artificial curing plant was established but this closed after a short period. In the early 1990s a local entrepreneur, Uvan Co. started a plantation and installed a rapid, artificial curing plant which was quickly followed by the rapid growth of smallholder cultivation and the introduction of traditional bourbon curing techniques. Uganda became an important producer, with output in some years having exceeded 150 MT, with production in western, central, and eastern Uganda.

In recent years, there have been quality issues, in part related to early harvesting and poor processing. Efforts are being made to improve quality, quantity, and yields, with government support. It was estimated that production in 2021 reached 150 MT, considerably higher than originally predicted. Growing conditions in 2022 were good so production could have exceeded 200 MT but it is not clear

if some production in neighbouring Tanzania is being traded through Uganda. In addition, there is some concern about maintaining quality standards, particularly with regard to moisture content, and this means that Uganda vanilla will sell at a discount to Madagascar.

**Tanzania**

While Uganda has been the dominant vanilla producer in East Africa for several decades, over the border in Tanzania vanilla production has been growing quickly in recent years. According to Tanzania's Ministry of Agriculture, vanilla production increased significantly in the last five years, "rising from 229.8 tonnes per year in 2015 to 1,949 tonnes in 2020". However, these data relate to green beans rather than the usual cured vanilla. Some 5-7 kg of green beans are required to produce 1 kg of cured dried beans, through a skilled four step process of killing, sweating, drying, and conditioning. With the relatively high prices in recent years, Tanzanian farmers have been reported to be switching from coffee and other cash crops to vanilla. The growing importance of Tanzania is reflected in the holding of an international vanilla conference in Tanzania in late 2019, just prior to the onset of the pandemic.

**Comoros**

The Comoros Islands in the Indian Ocean, just north of Madagascar, produce high quality bourbon vanilla.

High vanilla prices since 2015 led to efforts to increase production, by both existing and new companies. Production in 2017 was estimated between 30-40 MT but an aggressive government-supported growing campaign was predicted to lead to a substantial expansion in production, but as yet this appears not to have materialised, but output in 2022 could have exceeded 50 MT. This is probably the result of a combination of high production costs, lower vanilla prices, the pandemic, and the severe logistical and shipping constraints faced by the country.

**Tahiti**

Tahiti in French Polynesia has been cultivating vanilla since the mid 19th century from the true *V. tahitensis* variety. It was a sizeable producer in the early 20th century with production peaking in the 1930s at an estimated 200 MT (possibly green vanilla). Current production is estimated at around 10 MT.

**Tonga**

Tonga is another small South Pacific producer and exporter of vanilla beans, from *V. planifolia*. Vanilla has been organically farmed in Vava'u since the 1950s. In the late 1980s annual exports exceeded 30 MT but low prices led to dormant production until about a decade ago. Since then efforts within the Vava'u region have led to the once dormant plantations being brought back into production. A recent estimate said more than 300

farmers and 1,400 people now work in the vanilla industry, while another source suggested production of 144 MT but this is almost certainly green vanilla beans.

**Réunion**

Réunion is a French overseas department, where in 1841 a 12-year-old slave discovered the hand pollination process, leading to the rise of bourbon vanilla growing. In the 1930s Réunion became the leading global producer but competition, particularly from neighbouring Madagascar, led to a drastic reduction. Even in the late 1980s Réunion exports were annually averaging around 25 MT but production declined further. Currently Réunion offers small quantities of a high-end product with PGI (Protected Geographical Indication) status, which brings together 140 small producers, based mainly on the east coast.

**Mexico**

Until the early 19th century, Mexico was the sole producer of vanilla. Current annual production from *V. planifolia* is estimated at around 5-10 MT.

**India**

In India, vanilla is grown in the southern states of Kerala, Karnataka, and Tamil Nadu and has been expanding since *V. planifolia* was first planted in the early 1990s. More recently planting has taken place in Assam in Northeast India.



**REUNION**  
Vanilla plants under a meshed canopy to moderate the sunlight



**REUNION**  
Sweat box which is used to hold vanilla beans after heating



**REUNION**  
Drying rack where the cured beans are held to complete drying

SOCIO-ECONOMIC REPORT ON VANILLA

The Spice Board states the area under cultivation is currently around 1,000 ha, not all of which is currently yielding. Present annual production of processed vanilla is estimated to be around 6-8 MT although some put the figure considerably higher.

**Sri Lanka**

Vanilla is a comparatively new crop in Sri Lanka produced from *V. planifolia*. Around 2,000 farmers in Kandy, Matale, Nuwara Eliya, Kegalle, Ratnapura, Badulla, and Galle are engaged in cultivation in the mid and low country wet zone. Production is on less than 100 ha and annual output in 2021 was put at 26 MT, which is almost certainly green beans. This is consumed domestically as well as exported in a variety of forms. In addition, Sri Lankan vanilla exporters have introduced products like vanilla-infused virgin coconut oil, vanilla tea, bee honey with natural vanilla, and vanilla vinegar to the global market.

**GRADING, PACKAGING, QUALITY STANDARDS, LEGISLATION AND REGULATIONS**

**Export Grading and Packaging**

The large producing countries have systems of grading and quality certification aimed at ensuring that exports meet recognised standards. Beans are graded according to length, appearance, and moisture content and a minimum vanillin content may also be specified. Madagascar has four main export grades and Indonesia three. After grading, whole beans are tied in bundles containing hundreds of beans wrapped in waxed paper. These are packed in tins, also lined with waxed paper, holding up to 10 kg of beans with relevant information on

the tins. For shipment, batches of tins are placed in cardboard or wooden cases and depending upon the grade and contractual arrangements, may be air or sea-freighted with most lower grades being sea-freighted.

**Quality Standards, Legislation, and Regulations**

The International Organization for Standardization (ISO) has a standard which describes the general characteristics of vanilla beans and classifies them by appearance and moisture content: ISO 3493-2014. However, many importers or end-users have their own in-house specifications and beans are selected and blended based on size, appearance, colour, gross flavour character, and vanillin content. The minimum vanillin content demanded often depends on the use to which the beans are put.

Due to its many possible uses, vanilla is impacted by a range of legislation and regulations covering its use in foods, fragrances, cosmetics, and chemical substances. A key challenge is adapting to the differing regulatory requirements between markets. The USA and EU are major markets and detailed descriptions of their respective regulatory requirements are contained in Hallegan et al (2018) and CBI (2018).

One contentious issue in the food industry remains the usage and labelling of naturally flavoured vanilla products. Currently there are several class action lawsuits against

companies misrepresenting their applications of natural vanilla.

Another current cause of concern for vanilla and other ingredients is the EU's recent legislation (EU 2023/277) which from September 2023 substantially reduces the permitted levels of MRLs (Minimum Residue Levels) including nicotine in a product. This is a complex subject which does not yet have a clear resolution. As the situation becomes clearer the impact will be summarised in a future edition of IFEATWORLD.

**SOCIAL AND ECONOMIC CHARACTERISTICS**

The major economic and social contributions of natural vanilla are in relation to the employment created and revenues generated from exports, since almost none is consumed in the country of production. Revenues generated are greatly influenced by vanilla prices which can be quite volatile. Price levels are very dependent on the size of the Madagascar crop – and to a much lesser extent the Indonesian, PNG, and Ugandan crops – all of which are very weather dependent. Other factors influencing price include carryover levels, currency fluctuations, speculation, and particularly the value of the US dollar, as well as economic and political stability in producing countries. Sadly, only limited data are available on the economic and social impact of vanilla in producing countries.

As discussed earlier, vanilla production and processing is a very labour-intensive process and women and young people play an important role. This is particularly true for pollination which requires steady hands, good eyesight and is tedious to perform. The vine flowers for only a few hours in the morning and highly expert handling and training is required to ensure pollination is done successfully. Vanilla's high unit value and non-perishability, when properly cured, makes it particularly attractive for rural and remote locations. In addition, vanilla fits well into sustainable agricultural systems in relation to time competition with food crops. Whilst vanilla can provide a significant cash return, most smallholder producers also have food gardens for household consumption and sales in local markets.

**Madagascar**

Vanilla is so important to Madagascar's economy in terms of employment and export earnings that the government is closely involved in the sector, which employs an estimated 70,000 farmers in the northeast Sava region alone. Another source suggests an estimated 100,000 vanilla farmers plus all the beneficiary members and seasonal workers. This "green gold" is vital to the region and the country. Besides the smallholder growers, producing on farms of approximately 0.5 ha, there are an estimated 6,000 small village collectors who are financed by merchants and larger buyers who supply the processors and exporters. In addition, there are service providers in relation to provision of transport,

agricultural inputs, and financing services.

The government implemented a "decret" which fixes a minimum price for green beans, of 75,000 ariary per kg (approximately US\$ 18.5/kg) for the previous seasons. The objective is to support growers' incomes but there is much doubt as to whether this price is being observed and enforced. Growers have the option of curing their own beans and going for the "vrac" price if they don't find buyers for their green beans. In 2020 the government imposed a minimum export price of US \$250/kg and this minimum export price measure has recently been removed allowing "liberalisation" of the export price. This price applied to cured beans but not to vanilla extracts produced by local manufacturers who are able to buy vanilla beans directly from collectors or vanilla associations at substantially less than the official export price. While export prices are below this official level various ingenious schemes appear to be operating enabling exporters not to breach this policy. Also, there is an issue relating to which companies will be granted export licences.

**Indonesia**

Estimates of labour employed in Indonesian vanilla production are difficult to obtain in part because producers and exporters are also involved with other crops. One source estimated at least 10,000 small farmers are directly involved in production but the figure could be considerably higher based on labour estimates in neighbouring PNG.

**Papua New Guinea (PNG)**

PNG production is undertaken by subsistence farmers on small household plots of 0.1 ha. to 0.5 ha. Women and the young play an important role, particularly in the labour-intensive activities of pollination and processing. However, knowledge is limited regarding growing techniques and the drying and curing of green beans and quality aspects. An estimated 50%-75% of PNG vanilla originates from East Sepik and Sandaun (formerly West Sepik) regions and some 90% of the 90,000 households in the area are dependent on vanilla as an income source. It is an attractive cash crop and viewed as a good crop for diversification. Moreover, it is very labour intensive and the curing process to create good quality vanilla can take 3-6 months to complete.

**Uganda**

2005 estimates suggest Ugandan production of 150 MT was produced by 17,000 smallholders on approximately 2,500 ha. Each smallholder cultivated around 0.1 ha of land and produced the equivalent of 12-15 kg of cured beans. Only 5% of vanilla growing was on areas exceeding 0.8 ha. In addition, there were less than 5,000 collectors/middlemen/traders selling to the exporters who are also processors. Ten processors used the traditional bourbon curing process and another was using the rapid artificial McCormick curing method introduced in the 1970s to process cuts. Based on current Ugandan production an estimated 25,000 are dependent on



**MADAGASCAR**

After initial scalding beans are wrapped in blankets to form parcels and laid in the sun to heat up



**MADAGASCAR**

Field of vanilla beans wrapped in blankets heating in the sun prior to being placed overnight in a chest to sweat



**MADAGASCAR** Sorting bulk cured beans, after slow drying, being graded into bundles (graded by length and whether split or not split)

vanilla as an important income source, and these in turn would have sizeable family dependents.

**Comoros**

In 2006 it was estimated that there were 5,918 vanilla growers of which 4,387 were located on Grande Comore and the remainder on the islands of Anjouan and Moheli. The production structure was similar to Madagascar with smallholder growers, collectors financed by merchants, and big buyers who supplied processors and exporters.

**ENVIRONMENTAL AND SUSTAINABILITY INITIATIVES**

Alongside the direct economic and social benefits generated by the vanilla sector there are also important environmental and sustainability contributions. Increasingly, initiatives are being undertaken in the sector facilitating greater sustainability and assisting in combating climate change.

Over the past decade, vanilla has been at the vanguard of efforts to achieve “sustainable” production. Several large F&F companies, including ADM, DSM Firmenich, Givaudan, IFF, Mane, and Symrise, along with NGOs and some government agencies are leading efforts to achieve sustainable, traceable, and transparent vanilla supply chains and prevent future vanilla crises. The overall aim is to create vanilla production and marketing systems that are economically, environmentally, and socio-economically sustainable. The main programmes aim to help

smallholders maintain consistent quality and a sustainable supply through a range of programmes to improve soil fertility, planting of alternative crops alongside vanilla vines, sponsoring education, health care, and food programmes. In addition, various certification programmes (e.g., organic, fairtrade, Rainforest Alliance) are aimed at increasing smallholder incomes and enabling digital traceability while investing in farming communities.

Major companies adopt different strategies to achieve these aims. For example:

ADM - has established a joint venture SAVAN, supplying “direct from the farmer” vanilla throughout the year. Some 4,000 farmers are part of this first-ever farmer-owned supply chain with its own new curing facility and a pioneering large-scale digitally traceable supply alongside investing back into the farmers’ communities.

Mane - has integrated the value chain since 1999, implementing various certifications to allow full traceability and CSR actions.

Symrise - one of the largest F&F companies, has invested in vanilla in the Sava region since 2006. Its certified supply chain stretches from pollination to finished vanilla extract, combining local expertise with technology in the most sustainable way possible. It partners with over 7,000 farmers across 84 villages and has established its own quality control laboratories, and an extraction plant, employing more than 150 people running on sustainable local fuel offering another

source of local income. Exporting extract is less regulated than vanilla beans and Symrise claims to benefit the livelihoods of 40,000 people. It also provides training and educational support, health insurance, crop diversification advice, and financial advice and support through loans.

**SOME CONCLUDING REMARKS**

Vanilla production and processing make vital economic, social, and environmental contributions to vanilla producing regions of several producing countries, including Madagascar, Indonesia, PNG, and Uganda. It is a vital source of income for many tens of thousands of smallholders as well as providing a vital source of export earnings. If demand and prices for natural vanilla fall then it will have important consequences for the rural economy in the areas where it is produced. Also, vanilla has a vital environmental and sustainability role helping to maintain biodiversity, assists in combatting deforestation and helps to improve weak social and physical infrastructures.

The future of vanilla is, and will continue to be, unpredictable. Imprecise supply and demand signals, wide stock fluctuations and the threat of product reformulation and substitute materials all help to create a fragile market with lots of risk. These are difficult days for natural vanilla as the industry attempts to recover from the recent crisis, when almost everyone was hoping for an easing of prices. Barring further climatic and political catastrophes the recent high price cycle has come to an end. All

major origins have been endeavouring to expand production, while the high prices in the previous five years, combined with the pandemic impacted consumption, some arguing by as much as 30%. Accurate data are difficult to obtain. However, given these factors – and assuming no major catastrophe – then the next few years should see downward price pressure, but the scale of any downturn is difficult to predict.

Unless fundamental changes are made then the extreme cycles in natural vanilla supply and prices will continue. Perhaps agronomic and scientific advances and innovations, such as genetic markers to improve vanilla orchid varieties, with improved yields, flavour, and disease resistance will facilitate the growth of sustainable vanilla production. Biotech innovations may facilitate increased production of natural vanillin. Cooperative processing with improved technology might also assist. Meanwhile, the high prices of recent years have encouraged efforts to substantially increase production, while discouraging consumption, facilitated by product reformulations and the search for, and use of, vanillin alternatives. In contrast, several factors including rising health awareness, increased consumer spending, a willingness to pay a premium for clean-label products, concerns about food adulteration, and a demand for natural products are all encouraging vanilla consumption.

The global vanilla market, like many economies and sectors, was impacted by the COVID-19 pandemic. Vanilla demand, prices and profitability fell during 2020 and 2021 but as economies emerged from the pandemic, and demand for natural products continues to expand, so the vanilla market is predicted to grow over the coming years. The USA and the EU continue to be the dominant export markets, with both regions substantially increasing their imports, pointing to a growing demand for natural vanilla. The Asia Pacific vanilla market, although smaller than the EU and USA, is expected to witness the fastest growth driven by the growing demand for food and beverage agents as these economies emerge from the pandemic. Consumption of natural vanilla products is accelerating with strong demand from both the industrial and retail sectors, while the food service and institutional markets continue to recover from the impact of the pandemic. One source valued

the global vanilla market at US\$ 1.44 billion in 2021 with an annual growth of 4.5% to reach US \$1.96 billion in 2028.

There are undoubted positive signs in the global vanilla market. Demand for natural vanilla continues to grow as the impact of the COVID pandemic recedes and demand from the leisure and tourism sectors grows. Stricter standard and labelling enforcement will benefit some producers. However, there are dark clouds on the horizon ranging from more erratic weather patterns, disrupted supply chains, a major war in Europe, global inflation, rising interest rates, the probability of a severe economic downturn, and an expansion of global vanilla production and stocks. Predicting future vanilla supply and prices will continue to remain difficult and much will depend on developments in Madagascar and the government’s vanilla policies and management of carryover stocks.

Over the past decade IFEAT has been producing Socio-Economic Reports (SERs) on the impact of specific naturals in certain parts of the world. The reports are published in IFEATWORLD and uploaded to our website <https://bit.ly/3CSclio>

Would you like to suggest a product and author a report with IFEAT’s assistance as was recently done for the Oregano SER from Turkey? Updates on previous SERs would also be welcome.

The SER is designed to communicate the beneficial impact of the production of a natural product used in the industries served by IFEAT in the area or region in which it is produced. As legislation becomes ever tighter and sustainability, economic and social issues are taken increasingly into account, the SERs are proving very useful for IFEAT and other industry stakeholders in discussions on legislative and regulatory issues. Guidelines on writing SERs are available on request from [secretariat@ifeat.org](mailto:secretariat@ifeat.org)

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