

EXIM BANK: RESEARCH BRIEF

Vanilla and its Potential in India



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Introduction

Vanilla is a climbing terrestrial orchid grown in warm humid tropics. It is the second most expensive flavouring spice after saffron. *Vanilla planifolia* is the commercially grown variety. Growing of vanilla beans is quite complicated and labour intensive and its processing is a slow process requiring skills. Quality of vanilla beans depends on the vanillin content (minimum 1.8-2.0% normally) and presence of 250 aromatics. Vanilla has a wide application. Beans are used for producing extracts, flavours, oleoresins and powders and have a wide range of use in dairy products, ice creams, for flavouring tobacco, liquors, beverages and confectionaries, savoury applications, medicinal purposes, health and personal care products and as an odour maskant in tires, paints, industrial chemicals etc.

Vanilla Trade

Vanilla is internationally traded as pods or cured beans and its

vanillin extracts in different concentration. Vanilla prices in international market are very volatile and are administered by Madagascar, the leading producers. Natural vanillin extracted from vanilla beans and other natural substances is expensive and its cost ranges between US\$ 2000 to US\$ 3000 a Kg compared to synthetic vanillin costing between US\$ 5-US\$ 15 a Kg, produced by the chemical route using lignin from wood or other petro-products. The price ratio between these alternative products and vanilla concentrates produced using natural vanillin from vanilla beans ranges between 1:10 to 1:15. Vanilla extracts produced from natural vanillin extracted from vanilla beans, based on their concentration level, cost anywhere between US\$ 50 to US\$ 200 a Kg, which is commercially used. The supercritical CO₂ extracts are even more expensive. Generally, 5 kg of green vanilla beans are required to produce 1 kg of cured vanilla beans. With average vanillin content in

cured vanilla beans about 2 %, about 50 kg of cured vanilla beans or 250 kg of green beans are required to produce 1 kg of natural vanillin approximately.

Synthetic extracts seek to reproduce only vanillin, which has a heavy and grassy odour with less agreeable aftertaste. It is generally prepared from cheaper sources like waste sulphate liquor from paper mills or coal tar extracts or coumarin found in tonka beans, a compound having similar but stronger odour than vanillin, banned in 1954 by the US Food and Drug Administration due to its reported carcinogenic properties and toxicity on liver of test animals. Despite these disadvantages, synthetic vanillin produced from the pulp paper industry has the largest consumption in the USA and other countries including India, by reason of its lower cost and ready availability. However, USA has strict Code of Regulation on the use of the flavour. It is the only flavour with a USFDA regulation. USA

is the largest importer of the cured beans and extractors of natural vanilla extracts followed by EU and Japan. The type or “category,” of vanilla used determines how ice cream is labelled in the USA:

- **Category 1:** Natural vanilla extract. Two-fold vanilla is commonly used. Ice cream products must be labelled as “vanilla ice cream.”
- **Category 2:** Vanilla-vanillin extract. This is considered natural and artificial (N&A), where the natural component is the characterizing flavour. Ice cream products must be labelled as “vanilla flavoured ice cream.”
- **Category 3:** Natural and artificial vanilla flavours or artificial vanilla flavours, where the artificial component predominates. Ice cream products must be

labelled “artificially flavoured vanilla ice cream.”

Vanilla: International Market

The international vanilla market is characterized by its extreme volatility. Three features dictate the international vanilla market, viz., highly speculative cycles, raw material quality and competition from synthetic vanillin. Prices can fluctuate enormously over a period of few months. The world production was of the order of 5,400MT in 2004. The production has been increasing rather heavily in recent years with an average annual growth at 4 % over a 10-year period.

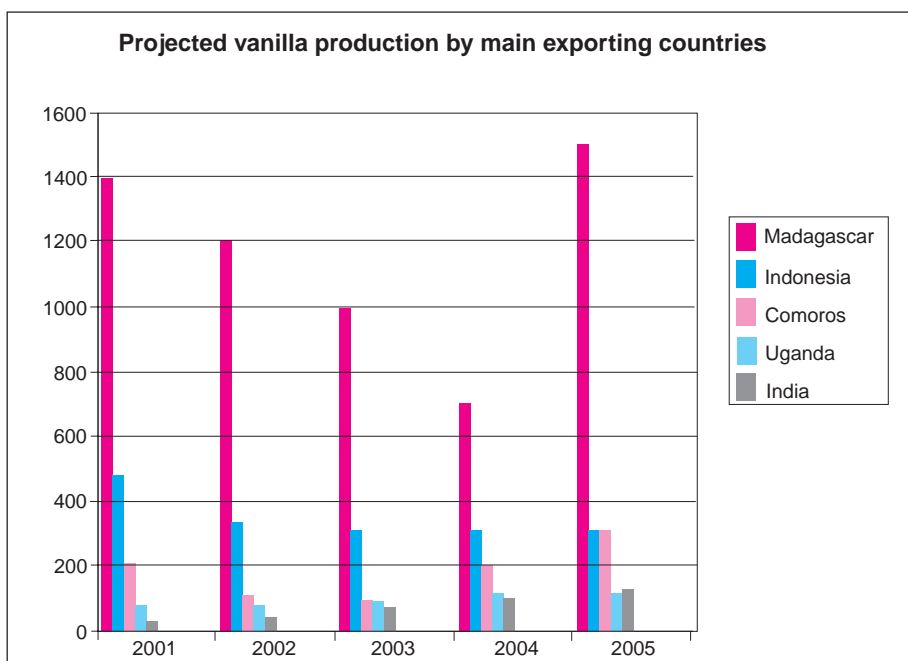
Increase in production without corresponding growth in demand has pushed cured vanilla prices in the international market down to

US\$ 35 a kg from over US\$ 500 a kg two years ago. Shooting prices during 2003-04 was due to the shortage of supply from Madagascar, owing to their political instability and crop failure as a result of repeated cyclones.

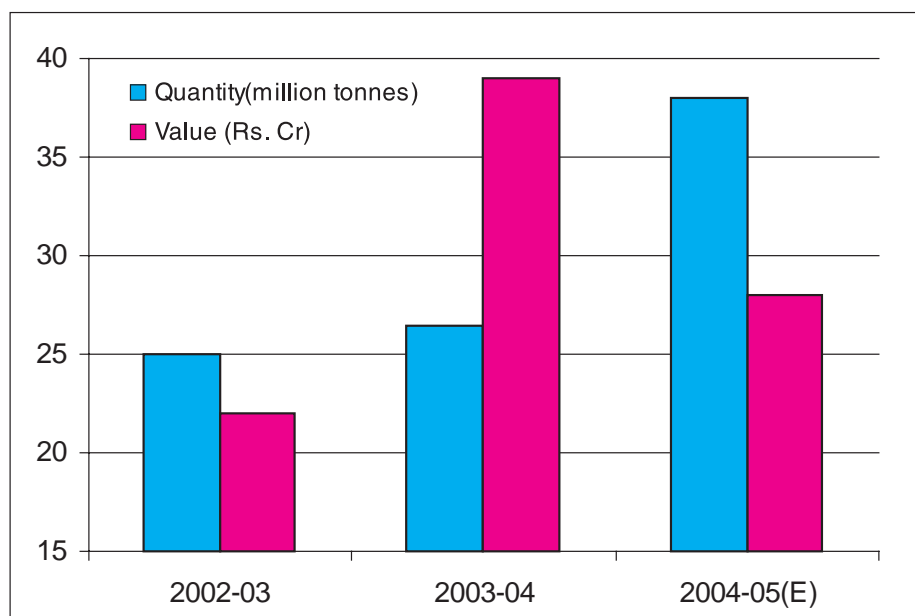
High prices in the recent years have enthused farmers in countries such as Uganda, Papua New Guinea, India, Costa Rica, China and Colombia to take up vanilla cultivation. The current fall of prices can be attributed to the recovery of the Madagascar crop, introduction of new entrants in the market and shift in demand to alternate products such as synthetic vanillin and natural identical vanillin as a result of skyrocketing prices of natural vanillin. Although vanilla extract from beans is still used by the food industry, this accounts for less than 1 % of vanillin production. Remaining 99% is obtained synthetically. The current depression in the world vanilla market is expected to continue to prevail until companies who shifted to alternate products revert to using natural vanillin from beans. Traders expect the vanilla price to settle down at US\$ 60-70 per kg by 2007-08.

Indian Market

India entered the international vanilla market during a crisis due to shortage of supply from Madagascar and resulting price



Vanilla Exports Trend from India



rise. Indian vanilla, according to industrial sources is at par with Madagascar Bourbon vanilla in terms of vanillin content and quality, which made importers source vanilla beans from India in order to meet the demand of natural vanillin. In 2003-04, India exported 26 MT of cured vanilla beans at Rs. 36.06 crore (US\$ 8 million) registering a phenomenal annual average growth rate of 92 % between 1999-2003. According to certain latest estimates by Spices Board, vanilla exports from India have posted a 90% increase in quantity and a higher average price than Madagascar at US\$ 47.30 a kg of cured beans during last fiscal. India came into the market with a small production last year at about 50 MT only. Currently India has 100MT of cured beans to offer to the international vanilla market.

Since the last season Indian growers has been fetching Rs. 900 (US\$ 20) per kg of cured vanilla beans and on an average of Rs. 250 –275 (US\$ 5.5-6) for a kg of green beans. As per industry sources, currently Indian vanilla has been enjoying fairly good demand in the US, France, Germany, The Netherlands, UK and Japan. Considering the export potential, Spices Board has been encouraging vanilla cultivation as an intercrop to coconut, arecanut, coffee, cardamom and other spices in the states of Tamil Nadu, Karnataka and Kerala and also intends to provide support facilities for the expansion of area under the cultivation of vanilla, as an intercrop, to the states of Andhra Pradesh, Maharashtra, Madhya Pradesh, Orissa, West Bengal, Andamans and North Eastern States. Vanilla

cultivation has become a major activity for farmers in Karnataka particularly in its five districts namely Shimoga, Uttara Kannada, Dakshina Kannada, Udupi and Chikmagalur, which have been declared as the Agri-Export Zone (AEZ) for vanilla by Government of India.

Indian Vanilla: Road Ahead

India is currently producing 100MT of cured beans, which is likely to rise to 400 MT by 2006 as many growers in Karnataka, Kerala and Tamil Nadu have taken up vanilla cultivation as monocrop as well as intercrop in the year 2001-02. In the absence of demand for natural vanilla concentrates in India and large-scale natural vanillin extraction facilities in India, almost entire production of cured beans is exported to other countries in particular to USA, UK, France and Germany for further processing and extraction of natural vanillin. India's domestic market for vanillin is completely dominated by synthetic vanillin due to its low price and easy availability. India imports around 600-700 MT of synthetic vanillin, which is mostly consumed by food and beverages industry (200 MT), ice-cream industry alone consuming about 130 MT.

To promote and facilitate the Indian vanilla industry institutions like Spices Board,

Kochi, CFTRI, Mysore, IIT Mumbai and few other private players like Vanilco, and Synthites India have made several successful efforts, which are to be implemented effectively. Vanilla is covered under all generic export development schemes of Spices Board. They are also helping the growers regularly with technical guidance, planting materials, market information on vanilla etc. Currently they are launching Indian vanilla under their brand of spices 'Flavourit' in US and European markets. They are also working on launching Indian vanilla extracts in international markets. A newly formed producer company Vanilco, Kochi has been making vanilla extracts in small amount of 1-1.5 MT and exporting it to Mexico and Japan. The quality of the extracts largely depends on the curing of the beans. To address issues related to curing and processing of beans, Central Food Technology Research Institute (CFTRI), Mysore has developed an accelerated curing technology that reduces the process period from 180 days to 80 days only. Indian Institute of Technology, Mumbai (IIT Mumbai) in association with an industrial partner has indigenously developed an economically viable Super

Critical Fluid Extraction Unit (SCFE) for extraction of natural products, flavours, oleoresin and essential oils. The technology is believed to be at par in performance with the foreign technology with costs 20-25 % lesser than its foreign counterpart.

With technology for extraction and processing in place, India can make a mark in international vanilla market. Main issue, which requires attention, is the volatility in international price and its consequent adverse impact on the domestic growers. To address such issue, market for natural vanilla concentrates needs to be created within the country. Govt. of India may consider enacting laws for mandatory use of natural vanilla concentrates in the high price ice cream segment, if not for all since ice cream industry is a major user industry for vanilla flavours. Along with this, labelling requirements may be introduced as in USA, so that consumers are educated about natural vs. synthetic products. As ice cream is normally consumed by high-income group, such a policy is not likely to affect the poor. Sources reveal that given the price ratio of synthetic vanillin to natural vanilla extracts at 1:10 to 1:15, use of natural vanilla

concentrates in the Indian ice creams may increase the final price to the consumers by about Re.0.40 to Re. 0.60³ for every 200ml cup of pure vanilla ice cream. Assuming a mere 10 % of the present synthetic vanillin used in ice cream industry can be converted to natural vanillin use, demand for about 15 MT of natural vanillin can be created within the country. This translates into a demand of 750 MT of cured vanilla beans, almost 8 times the current production in India.

³ Synthetic vanillin use in Indian ice cream is at 100ml to 100 litres of vanilla ice cream. The price of 100ml synthetic vanillin is about Rs. 20. Therefore, a 200ml cup of pure vanilla ice cream will have synthetic vanillin content worth Re. 0.04.

The contents of the publication are based on information available with Export-Import Bank of India and primary desk research through published information of various agencies. Due care has been taken to ensure that the information provided in the publication is correct. However, Export-Import Bank of India accepts no responsibility for the authenticity, accuracy or completeness of such information.

Note: Indian Rupees are referred in crore and lakhs:
1 crore : 10 million
1 lakh : 100 thousand

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