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## Introduction

The Reunion Island is a French overseas department situated 10 000 km from mainland France, it is part of the Mascareignes archipelago in the Indian Ocean and located on the Capricorn tropic. A tropical island, it has a certain number of agricultural assets which it wishes to develop for the export or the domestic markets. However, certain disadvantages slow down its economic evolution.

Its isolation within the countries ACP (Africa, the Caribbean and Pacific) is a strong handicap to the current problem of competitiveness of the productive sector of the Reunion Island;

The Reunion Island, French department receives subsidies and European assistance which enables it to preserve high living standards. Thus, the local labour is very expensive compared to the neighbouring islands; The products from the Reunion Island are unfairly compared with similar products coming from this area of the Indian Ocean.

In spite of the Reunion Island higher priced products, the Reunion Island has the ability to differentiate them by the recognition of their quality. These quality symbols must be developed if the Reunion Island wishes to maintain, develop and innovate in agricultural products. This demand is requested by all the professionals, producers, transformers and distributors. Several agricultural produce just like, the litchi; the pineapple and mango are included in a Quality Certification project (IGP - Protected Geographical Description) or "Red Label" initiated by the Reunion Island Agriculture Chamber.

## 1 History

Vanilla is originating from Mexico of the family in *orchidaceae*, which counts more than 17 000 species. The *vanilla type* represents around 110 species, but only three are cultivated and have a commercial value:

- *Vanilla planifolia* or still called *Vanilla fragrans*
- *Vanilla tahitensis*
- *Vanilla poinpona*

The vanilla plants within the Reunion Island belong to two different species:

- *Vanilla tahitensis* and *Vanilla fragrans*.



Climbing plant with thick, long and full leaves, the vanilla plant is rolled up around a support, tree or tutor. Adventitious roots develop on the stem and fix the plant on its support. The flowers are small and white.

P. Tietze

Vanilla thrives in valleys, sheltered wet places away from the wind, under moderate sun.



Between 1819 and 1822, vanilla stocks were introduced into the Reunion Island.

But the vanilla flower can only be fertilized by one bee which only lives in Mexico. During the first years the vanilla plants could not produce the so invaluable pods. We will have to wait until 1841 for a young 12 year old slave, Edmond Albius, to find the way for pollinating the vanilla seedlings. This extraordinary discovery marks the beginning of a prosperity era with an increasing production of vanilla (50kgs in 1848, 3 tons in 1858 and not less than 200 tons in 1898). The method was then exported towards other countries of the Indian Ocean zone.

The fruit resulting of this artificial insemination is a pod approximately 15 to 20cm in length. A quality label “Bourbon vanilla” exists since 1964. It covers all the production of the Southwest of the Indian Ocean, Madagascar, the Reunion, the Comoros and Seychelles.

## **2 Selecting a label**

### **2.1 Label AB**

The culture of vanilla is not an ordinary culture. Vanilla is a very delicate plant, which does not stand the hard treatments of modern agriculture. It does not support manures, it is necessary to fertilize the flowers by hand, to recognize when to harvest them with the eye and touch, etc. Due to this natural and well controlled farming, vanilla could very easily obtain the AB label, without going through a preliminary period of adaptation. However, in accordance with the A2 part of payment the EEC N. 2092/9 1, vanilla forms part of the natural aromatizing substances not resulting from biological agriculture authorized in the preparations of agricultural biological products. If it is authorized to incorporate vanilla not “bio” in products AB, the economic interests does not justify a conversion for the culture and the transformation of vanilla.

### **2.2 The Red label:**

The only official quality symbol to comply with strict requirements:

Created by the 1960 Agricultural Orientation Law, the label is a certification which attests that an agricultural product or a foodstuff has a range of pre-established characteristics to meet the highest quality standards. This product itself must be differentiated from the products or species usually marketed, in particular by its conditions of production or manufacture. The qualitative variations when compared to the current similar products must be directly perceived by the ultimate consumer, at the gustatory level as well as the image quality it conveys.

The national Label is defined under the term “Red label”. The name of the collective mark is legally displayed and is the Agriculture and Fisheries Ministry property. Any label is held by a collective structure, which generally regroups all the operators of the mark concerned, commonly called “grouping quality”. When requesting the label, the



product must demonstrate its higher quality, in particular by sensory analyses and hedonic tests.

To obtain a higher level of quality certification, the specific characteristics of the products under this label are recorded in a “schedule of conditions”. They relate to all the agro-alimentary chain links from the stock selection, the specie, the plant variety right to the conditions in the market place. Whichever product is concerned, the qualitative requirements and the constraints which result from this relate to three principal stages: the production, the transformation and marketing.

The schedule of conditions is the subject of a public consultation, an expertise carried out by qualified experts from the institutes of research and professional technical institutes. The Section “Examination of the reference Structure” of the national Commission of Labels and Certifications (CNLC) gives an expert opinion on these schedules of conditions. After a favourable opinion has been expressed, they are approved by inter-ministerial decree, and may be subject to a probationary period.

The respect of the schedules of conditions by the operators is controlled by certifying organizations accredited by COFRAC (in comparison with standard EN/450 11) and approved by the authorities, after opinion of the section “Approval of the organizations certifiers” of the CNLC, taking into consideration their independence, their impartiality, their competence and effectiveness of their controls. The “top-of-the-range” positioning of the label makes essential periodic review for the labelling criteria to keep into account technical evolutions and improvement of the current products to ensure a significant differentiation from existing products. Such is in particular the object of the national technical notes defining a category for a given production, the minimal criteria to respect the schedules of conditions of the labels.

A charter also applies to labelling, essential element, because the label is the only visual link between the quality of the product and the consumer. It is mandatory to include:

- Specific characteristics of the product
- Number of homologation of the label
- The Name and the address of the controlling organization
- The identifier or the signature of the group owner of the label
- One address for the possible complaints of the consumers.

As for the official “Red Label” logo, it must follow a graphic charter for its use. It must appear on the label of each product and if the latter is in several parts, it must be affixed on each label.



### **3 Economic feasibility study**

#### **3.1 Study of the international market of vanilla**

Vanilla is commercially cultivated since 1840. The systematic production of the pods started in particular in Madagascar, the Comoros and Reunion, where vanilla known as “bourbon” is regarded as the best in the world. It was introduced for the first time in Madagascar in 1870, and about 1901 a commercial production of 12 tons was quoted; this beginning was followed by a progression which reached 1,600 tons in 1977-78 a record level.

The Reunion Island was part of bourbon vanilla exporters’ cartel so called “Vanilla Alliance”, its partners being Madagascar and the Comoros. The three partners established annual quotas for each country, and in Madagascar the system was self managed. Throughout the Seventies and Eighties, this cartel adopted a strategy consisting in limiting exports to maintain high export prices. If the policy adopted by the Vanilla Alliance was to maintain the world levels to a high level to protect the traditional recipients operations, on the other hand it opened the door to certain external competitors, mainly Indonesia. The world market share held by Madagascar dropped radically, passing from 77% in 1971 to 30% in 1989. This Malagasy market reduction caused fear and consumption markets started to turn to the Indonesian’s vanilla varieties, which had previously a lower share of the world market.

Starting from the mid-eighties, Malagasy exports fell and the export of Indonesian vanilla reached the level of Madagascar. The prices of this vanilla are very low compared to its competitors (see the graph of the world price movement), nevertheless the vanilla is of low quality. From 1995, the Indonesian vanilla level exports remained stable. Malagasy vanilla between 1998 and 2000, reached top and bottom prices due to new reforms, but its export level remains higher than Indonesia (approximately 60% of the world production for Madagascar and nearly 25-30% of the world production for Indonesia-Bali). From 2000, with the economic crisis and bad weather, the export of vanilla fell considerably whereas its price kept increasing (see figure 3). The Malagasy current economic assessment is disastrous.

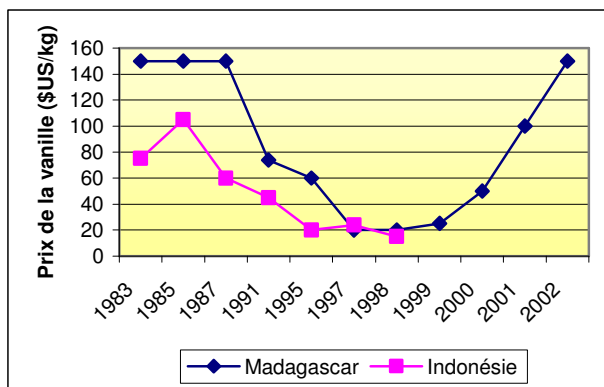
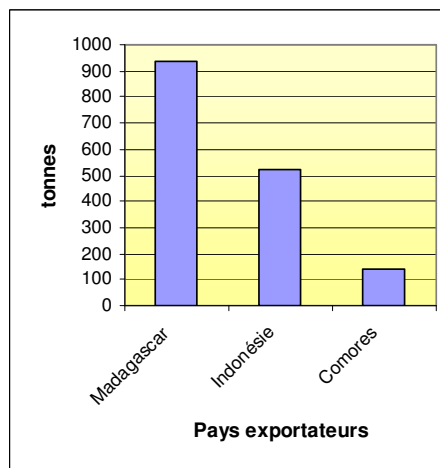
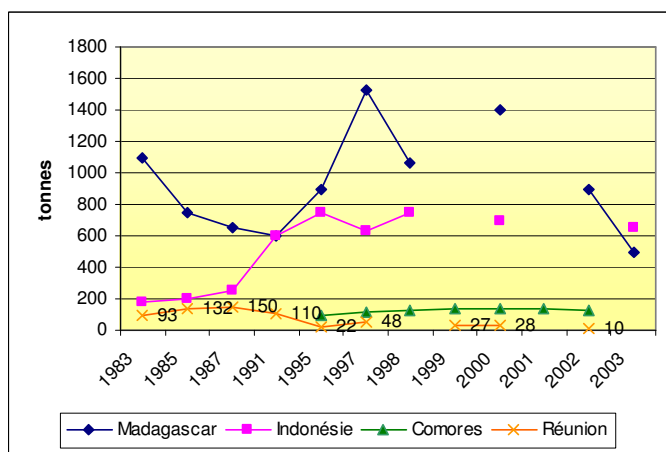


Figure 1: World price Movement of the of vanilla

For the Comoros and Reunion, the exported quantity is very small compared to Indonesia. The export of Comorian vanilla since 1995 remains very stable (close to 140t/an). The Reunion Island production fell after the end of the Vanilla Alliance. Currently it is 10t/year just like Tonga, and accounts for only 1% of the world production. The Reunion Island with its expensive vanilla compared to its competitors finds it extremely difficult to export it. Finally, Tahiti also exports its vanilla with a production reaching 10 ton/year.



Figures 2 and 3: Vanilla World market trends and export average

The world vanilla market is estimated at approximately 2,000 tons annual consumption. Leading the principal importing countries (see figure 4), are the USA (64%), France and Germany (15% each), Japan and Canada (2% each). Some of these countries consume only one part of the



imported pods, re-exporting the remainder to other consumer countries: it is the case of Germany, which re-exports 60 to 70% of its imports.

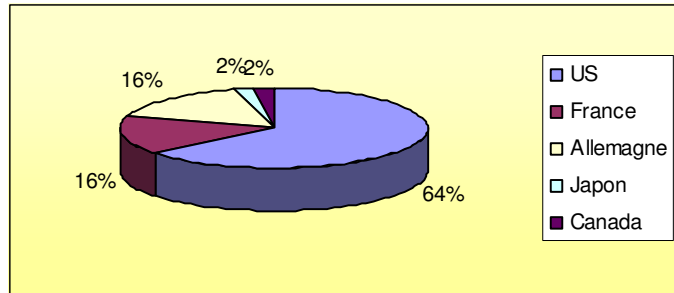


Figure 4: Main vanilla importing countries

#### A. Vanilla use

The Americans use vanilla (close to 1,000 ton/year) generously up to the point of flavouring their coffee. An appetite which leaves little room for the other countries... With its 500 tons per annum, Europe uses primarily vanilla for the flavouring of ice cream, dairy products and chocolate, without forgetting tobacco for pipe and perfumes. However, the vanilla flavour, commonly known as “vanilla” is not always originating from the pod.

#### B. Vanillin

Vanilla is the most widespread flavour in the world. However, its consumption in the form of natural vanilla extracts has decreased to the benefit of synthetic products which are less expensive. The world production of synthetic vanillin is about 12 000 tons per annum, the production of natural vanilla amounts to 1 500 tons per annum, which corresponds to 30 tons of natural vanillin.

The synthetic vanillin is not a perfect substitute for natural vanilla, both for qualitative reasons and economic reasons. Indeed, the vanilla flavour, which includes/contains according to flavour experts approximately two hundred components, is much more complex than vanillin. The culture and manufacturing conditions for vanilla as well as a poor vanillin yield explains the very high prices for natural vanilla. Whereas the price of one kilo of synthetic flavour is about 12€ -15 €, the natural vanillin flavour rises to approximately 30-50€. Taking in consideration this price difference, the natural vanilla extracts are rather reserved for the high quality products and the synthetic vanillin to high volume products.

#### C. Forecast for the future of the vanilla market

The professionals estimate that the development prospects are very good. The market should be



able to be broadened, if one makes the effort to promote it in the consuming and industrial countries, in particular Japan, Canada, the Scandinavian countries, Great Britain, Italy, the countries of Eastern Europe, and those of the Gulf. In these countries, there is a strong interest for natural products, with the assistance of favourable legislations, and should result in an increase demand; the natural vanilla share in the world market of vanillin has to be increased: it represents less than 0.3% currently.

For example, vanilla is trendy and essential in the USA as “*the perfume*” a la mode. According to the experts, the marketing effects should last at least over 10 years, creating a very strong demand for such agro-industrial products in many sectors: in the perfume industries such as Eau de Toilette, cosmetics and soaps, lipsticks, foam baths, industrial deodorants and prepared foods (containing natural flavours): coffee, ice, cakes, chocolate, desserts and other dairy products... In addition to the specific aspects based on the organoleptic qualities, dietetic and medicinal properties of natural vanilla, combined information campaigns on recipes and instructions how to use the pod in kitchen and pastry making, should lead to an important market increase in “*vanille de bouche*” (pod sold directly for home consumption). Today, this market has only a small world market share (2% in the USA, less than 20% in France).

### 3.2 Local market Vanilla Study

#### Vanilla Production of in the Reunion Island

Over the fifteen last years, the Reunion Island production has significantly fallen and is characterized by strong annual variations:

Years	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	99	00	02
Green Vanilla*	68	66	93	168	132	57	150	54	117	31	70	94	71	33	18	25	?	?	?
Black Vanilla (tons)												21.9	16.1	7.3	3.6	5.4	27	28	10

\* **Green** vanilla is a vanilla not transformed into black vanilla.

A production revival plan, which had increased the production of 70 tons to nearly 100 tons over the period 1983-1989, was disturbed by phyto-pathological accidents, cyclones and price fall on the world vanilla market combined with the fall of the dollar which involved a loss of profitability. This loss of profitability accelerated the dissatisfaction of the traditional producers of vanilla and in three years two thirds of them ceased their activity. Thus, the cultivated vanilla area decreased from 650 hectares in 1992 to 200 hectares in 1995. In parallel, the number of vanilla producers decreased from 677 to 242.

The vanilla culture is carried out as follows:

- in open fields which currently represents an area 3000-4500 plants/ha.
- in under wood which corresponds to 2500 plants under “pandanus” trees and 5000 plants under guava trees.



## B. Vanilla consumption in the Reunion Island

Local natural vanilla consumption is estimated at approximately 10 tons of black vanilla per annum. The industrial sector consumes nearly 5 tons of black vanilla but it is mainly imported vanilla. The vanilla domestic use is also estimated at 5 tons per annum. The local consumers frequently buy imported natural vanilla, mainly Madagascar Bourbon vanilla. On the other hand, for the tourists visiting the island, the “Reunion Island” origin is a determining factor.

Since 1994, the local production being lower than the demand, the market has been opened to Malagasy and Comorian competition, for both the industrial and domestic use. In 1996, the 5.4 produced tons of black vanilla were mainly marketed for domestic use. in the places of interest.

## C. Vanilla export from the Reunion Island

Local vanilla, although recognized for its quality on the world market, has marketing problems outside, because of its lack of competitiveness on price. Indeed, the production costs of the countries of the zone, in particular Madagascar, are without comparison with the Reunion Island. Moreover, new countries like Indonesia or the Tonga islands have launched vanilla production on a large scale at a very competitive cost.

All the vanilla producer countries have a low cost of the labour as a common characteristic, element critical to the competitiveness of the Reunion Island vanilla source. This plant is therefore intended for the local and tourist market.

### 3.3 Economic project for the Reunion Island vanilla

To develop the Reunion Island vanilla and consequently to grow its external market, the Red Label certification would be a major asset.

Various owners and transformers in coordination with the Chamber of Agriculture met to work on this project:

- Reunion Island Agricom (6 owners);
- Provanille (106 owners);
- UR 2 (producer for the above farming groups);
- Vanilla House (106 owners, private company transforming vanilla pods);
- St Philippe Farming Association (12 owners and processes vanilla).

These 5 groups produce each year:

- 66% vanilla from Reunion Island;
- 66% vanilla transformed on the Reunion Island;
- 60% vanilla producers from the Reunion Island.



## 4 Technical feasibility study

### 4.1 Culture of vanilla to the Reunion Island:

By its climate as the nature of its soil, the Reunion Island is particularly well suited to the vanilla culture. The areas East and South East of the island meet all the climatic conditions necessary to a very good production of vanilla i.e. heat and moisture. Under wood volcanic soils are perfectly suited to the vanilla culture, because this fragile orchid prefers these filtering soils rich in humus. Vanilla being a vine requires a support to develop in under wood or a support to grow between the sugar cane rows.

#### a) The bouturage (“grafting”)



Vanilla produces seeds, in its pods; however, the germination of the orchids is very unpredictable, slow and gives fragile seedlings, whose growth must be carried out with extreme care. This is why the growers always preferred the multiplication by “bouturage”, very easy with vanilla. A vigorous mother vine is selected with the closest nodes. The cuttings are taken there.

The cuttings are put in the shade during two weeks, during which they will lose a part of their moisture. The risk of rotting is thus decreased; planting is carried out at the end of the dry months (so the young plants can receive large summer rains). The cuttings are laid in trenches, the emerging bud is attached with a smooth tie to its support (and if possible tied with a plant so it rots and leaves the vanilla attaching itself with its tentacles). Each plant is placed at a distance of 1.5m from each other.

#### b) Plant Growth:

Delicate vine, the vanilla requires attentive care. Attention should be paid, for example, not too damage it: a too tight tie to the branch tutor, a spine or an awkward handling. Ties which support the young vanilla plant are made of dry banana leaves strings or “pandanus”, sufficiently loosen so that they are destroyed little by little as the vanilla grows and until it attaches itself with its tentacles. When the plant reaches chest height, one “buckles it” by making it to go down again towards the ground. The loop must be rather large so that the vine does not break.

The stem is then folded back towards the ground but should not reach it: it is tied again near the ground and one covers the portion of stem close to the ground with straw, so that



new roots grow in the humus. These new terrestrial roots are then called the “greedy ones”. Vanilla can live twenty years. The plant is sterile during the first three years of their life. Then they produce a maximum of one kilo of vanilla per annum, during ten years. (1kg is sold around 15€). The older stocks become less productive, in spite of the new sap brought by looping. The most productive years



are from the fourth to the seventh year.

c) The plantation:

Three types of vanilla plantations are found on the Reunion Island:

- Open field Vanilla plantations, for example on the sandy Saint-Andrew and Sainte-Suzanne soils. The tutors are generally “pinion” of India or “candle wood”.

- Vanilla plantations in rows, alternating with sugar cane rows. The supports are the same ones as in open field and the cane straw is used as mulch.

- Vanilla plantations formally known as “de vocation”, in under wood in the areas of Sainte-Rose and Saint Philippe. The tutors are trees from the wet forests: the “filaos” and the “pandanus”.

One hectare in open field can accommodate 4000 vanilla plants, one hectare in under wood, not more than 2000.



d) Flowering and fecundation

The flowering of the vanilla plant occurs only at the end of three years. With the Reunion Island, it takes place from September to December, the beginning of the southern summer.



The inflorescence is done in form of ear at the “armpit” of the leave. Each ear can give birth to about fifteen floral buttons, laid out in the shape of a bunch called claw. And each vanilla plant can give ten claws. All the flowers (around 150) are not fertilized. The expert growers have learned that the best results are obtained to fertilize no more than six to seven flowers on each claw, naturally selected among the most beautiful.

The vanilla flower is hermaphrodite having both male and female organs close to each other. One could then think that its fecundation is simple. However, petals of the corolla, the labellia one, envelop completely the sexual organs, and only a bee from Mexico manages to bore and start the pollination. Therefore the grower must carry out a manual fecundation.

This manual pollination must be done for each flower, very early in the morning, the transitory flower lasting only a few hours. The operation consists in carrying pollen (pollinies contained in the pollinic bag) to the mark of the pistil of the female organ. It is the daily work of “fécondeuses” or “matchmakers” who can fertilize 1000 to 1200 flowers each morning.

e) Punching

After one and half month, the pods practically reach their final size but they are still green and hard. It is at this time that the grower punches them, marking their surface with a small prolonged artisanal apparatus of spines which affixes the



mark.

f) Harvesting

After fecundation, it is necessary to wait eight to nine months for the vanilla pod to reach its adult size, start to turn yellow and to be ready for harvesting. Harvest thus takes place from mid to the end of the dry season, between June and September.



Good biological maturity is recognized with a yellowing of the end of the pods. This maturity must thoroughly be checked, because a pod not very ripe is likely to split, which remove a great part of its commercial value.

g) Treatment of the pods after harvest

If one leaves the vanilla pod on the plant, it would end up maturing completely. But this pod, subjected to bad weather, would likely rot or split, releasing the flavour essence. For one and half century, the Reunion Island growers have therefore developed the meticulous stages of a controlled maturation, which allows optimal quality, developing at the same time the flavour and the pods appearance. This is called a long refining maturation.

These stages were tested and improved within the Reunion Island, in particular by Loupy and De Floris.

h) Scalding

This is used to stop the vegetable life. Harvested vanillas must be treated within 48h so that they are unlikely to shrivel. It is necessary to make them undergo a mortification which will stop the vegetable life of the pod, therefore its natural maturation and allow a controlled maturation.

This maturation can be obtained by various methods (exposure to the sun, passage in an oven-drier...), but the scalding developed by Ernest Loupy and popularized by David De Floris in the XIX century is the generally preferred by all the growers around the world.

It consists in gathering the pods in a basket, which can contain around 15kg and to plunge them into a hot water bath at 65°C for 3 minutes.

i) Humidity cabinet

This is used to drain the water out. Immediately after scalding, the pods are drained and enclosed in boxes insulated with thick blankets. The objective is to not cool down too rapidly the vanilla pods. To go down from 60°C to the ambient temperature, it “will sweat” out a good part of its water and will take its chocolate colour within few hours. This transformation is fast. Vanilla stays only around 12h in these insulated boxes. It has then lost a good third of its weight through sweating and evaporation.



#### j) Drying

It is necessary to dry them perfectly to avoid mildew or rot in the vanilla pods during their long maturation. But not too dry so they can keep their essential oils and this flexible feeling touch which makes them of outstanding quality.



This is why many growers' generations have developed drying in several phases. Vanilla is taken out of these humidity cabinets and laid out on trays in rather thin layers so the air circulates there perfectly. These trays are exposed to the sun, from three to five hours per day during one week. A part of the drying process is also done in the shade, either in sheds or under protecting

roofs. Perfectly dry vanilla then takes finally its chocolate colour.

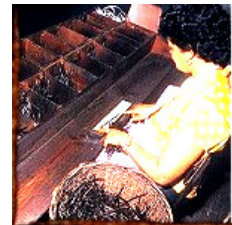
Certain growers supplement this natural drying by a passage into an oven-drier at average temperature.

#### k) Sorting

This is used to separate the different pod qualities, for example imperfectly ripe which are likely to mildew during the refining and on the other hand to separate "industrial" vanillas from "domestic" vanillas.

The long pods, well inflated, "fleshy", without damage, will be sold just as they are after refining: it is the "domestic" vanilla, most beautiful and most expensive.

The smaller pods, less pretty, less filled, but rich in flavour, will be crushed into a powder or will be treated to extract its oil: it is "industrial" vanilla.



Pod sorting is done by hand. It requires skilful and expert hands.

After this first selection, the "industrial" vanillas are immediately taken out of the boxes for further refining, while "domestic" vanillas, thicker, still undergo a drying in the shade, in a ventilated room, which can last one month. At the end of these operations, the vanilla will have lost the three quarters of its weight (1kg green vanilla gives 250g dried vanilla).

#### l) Refining

Once they are considered sufficiently dry, the industrial and domestic pods are carefully put back into the wooden boxes. These boxes are internally covered with greaseproof or paraffined paper to isolate the vanilla from external moisture. Enclosing in dark boxes is essential to the enzymatic processes which will lead to the full development of the flavour. It is very slow and it takes eight months before the refining is completed.

During the first months the wooden trunks are open each week and their contents are controlled. These regular checkups are essential to detect any trace of possible



moulds. At the end of a few months, all the bad pods having been taken out, the checkups are spaced to once a month.

**m) Conditioning**

At the end of refining, another sorting takes place which is only relevant for home consumption vanillas. This sorting is done according to the size of the pods, using a scale. The pods are then conditioned into bunches or individual pods in a plastic sachet.



The hardened pods during the refining are rejected and used as industrial pods. The prepared vanilla pods can be kept during many years.

**4.2 Vanilla higher quality controls**

Many other methods exist and are commonly practised, in particular for the preparation of the vanilla pods. This process can be accelerated; nevertheless the resulting quality is definitely lower. The culture and the preparation of the vanilla carried out in a traditional way in the Reunion Island make it possible to obtain required vanilla flavours. The schedule of conditions for a Red Label certification would scrupulously follow the rather complex stages of the traditional method.

**Summary table**

**Culture and Processing Requirement to create a Schedule of Conditions for the obtention of a Red Label Certification:**

Stages	Indications, characteristics
1) Soil selection	Ground A: sandy, light, friable, permeable To add the humus "sugar cane straw" For complementary vanilla plantations Ground B: volcanic, hard and rich in humus Cleared or virgin soil For vanilla plantation of vocation
2) Dry Areas	Moderated irrigation with clean water
4) Support selection	The following properties are sought: - permanent bark; - Fall of the leaves in winter; - relatively low Size; - vigorous support; - Foliage not too dense Not to use trees with economic interest



<p>Living support:</p> <ul style="list-style-type: none"> <li>- Pinion of India</li>   <li>- Wood of Candle</li>   <li>- Pandanus</li>   <li>- Goyavier kind <i>Psidium</i></li> <li>- Wood of River</li> <li>- Jambrosade</li> </ul> <p>Dry support (wood of rampart, plait, mapou)</p>	<p>associate with sugar cane if possible Distance between the line of pinion of India and sugar cane: 1.5m</p> <p>In the heights (350 m. of altitude)</p> <p>In the grounds B. Must be 10 years old minimum</p> <p>In the grounds B In the grounds B In the grounds B</p> <p>It should not damage vanilla (not iron wire), to deteriorate easily. It must be localised in the forests or other making it possible to make shade.</p>
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<p>5) Distance between tutor</p>	<p>1.25m to 1.50m for ground A</p>
<p>5) Cutting Selection</p>	<ul style="list-style-type: none"> <li>- To eliminate buttons appearing towards the 52nd and 62nd month;</li> <li>- On vigorous vanilla plants of 3-4 years,</li> <li>- not to choose, vanilla plants weak, grooved, or presenting an unspecified disease</li> <li>- To use the ends of the vines carrying a bud</li> <li>- <u>On each cutting to remove the leaves of the part intended to be put into the ground</u></li> </ul>
<p>6) Installation of the cuttings</p>	<ul style="list-style-type: none"> <li>- From July to September</li> <li>- If the ground is not too wet: Dig a trench 20 cm in length and 5 cm deep. Place 2 or 3 internodes without leaves in the trench, cover them with soil. To carry out “mulching” for a ground A</li> <li>- If the ground is too wet: Place the lower part of the vine on the ground. Secure using a stone. Attach the higher part of the vine to the support with a knot not too tight and bio-degradable. Roll up the vine around the tutor with the end directed downwards.</li> <li>- After one and half month, replace the grafts which have failed</li> </ul>



	<ul style="list-style-type: none"> <li>- Stop the vines reaching the tutor top otherwise bring them down on cloudy days. Keep their normal orientation.</li> <li>- Eliminate the larger tentacles</li> </ul>
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Stages	Indications, characteristics
7) Pro-vining	<ul style="list-style-type: none"> <li>- From October to December</li> <li>- detach with precaution the end of the yellow vines and bring them close to the ground</li> <li>- bury it.</li> </ul>
8) artificial insemination or pollination	<ul style="list-style-type: none"> <li>- On vanilla plants between 3 years or 4 years according to flowering and 8 years,</li> <li>- Destroy the flowers appearing before the 3 years age,</li> <li>- If the vanilla plant is more than 8 years, to tear off it and rotate the cultivated area to rest the soil</li> <li>- Begin pollination as soon as the flowers appear (in mid September normally), in dry weather between 7 am and 1 pm</li> <li>- Pollinate 5 to 8 flowers on the vigorous vanilla plants carrying 15 to 20 flowers by ears and remove the others,</li> <li>- Pollinate 4 to 5 flowers per bunch on weak vanilla plants</li> <li>- Seize the flower base with the left hand, while placing the index under the gynostème, fold back the labelle one without tearing it raise the rostellum and place it under a cheesecloth with either the needle or the spine or the nics. With the thumb, apply a small pressure bringing back the pollen into contact with the mark.</li> </ul>
9) punching	<ul style="list-style-type: none"> <li>- Carry out in dry weather</li> <li>- Apply the punch to 2 cm of the end opposed to the stick and on the face of the pod located towards the interior</li> </ul>
10) harvest	<ul style="list-style-type: none"> <li>- 9 months after pollination from June to September</li> <li>- Harvest the pods, yellows at the end by holding the pod by the stick, without cutting it with the nails</li> </ul>
11) Conditions for the preparation of the pods	<ul style="list-style-type: none"> <li>- In a well ventilated shed having several doors and windows</li> <li>- concrete slab</li> </ul>
12) Sorting of green vanillas	<ul style="list-style-type: none"> <li>- At the vanilla pod reception</li> <li>- Separate 14 cm length vanilla from 10 to 12 cm length</li> </ul>
13) Scalding	<ul style="list-style-type: none"> <li>- from 1 pm to 5-6 pm</li> <li>- Place vanilla into bamboo baskets half or three-quarter full to obtain a weight of 17-20 kg</li> <li>- Plunge it into a cauldron containing water at 65°C</li> <li>- Immersion time must be 3 and half minutes</li> </ul>



	- carry out the following day a second mandatory scalding for the too green pods. The water temperature must be of 70°C and the pods are immersed for 1 minute
14) Oven-drying	- Place vanillas in large iron boxes, insulated with wool blankets and let them rest for the night (12 hours to 14 hours)
15) Sun-drying	- the sun-drying lasts 5 to 6 days - Expose the vanilla beans to the sun by laying them out in thin layers on blankets or jute bags or placed on the ground or on trays according to the quantity of vanilla - Repack vanilla beans in humid weather except if they were posed on the trays. If raining, add wool blankets and wrap the whole in large plastic covers - Check every 2 days, once the pods feels flexible to remove them the trays
16) Drying in the shade	- Place vanillas on open trays in a ventilated shed - Check every 8 days during 2 to 3 months and take out the dry vanilla beans - After this drying pm plunge the vanilla beans in warm water (40°C) by a sunny afternoon between 1 pm to 3. Rub the beans against each other. - Plunge the pods in water at 65°C for 30 seconds, - Spread out the pods in the sun, and return them into the boxes at the end of the afternoon
<b>Stages</b>	<b>Indications, characteristics</b>
17) Preparing the boxes	- Insulate the wooden boxes with greaseproof paper - During 4 to 8 months, check the vanilla beans every 3 days. Take out the mildewed pods, expose them to the sun. Once the mildewed has disappeared, reclassify them to the lower quality
18) Classification	- Refer to the decree of October 2, 1946 for the classification of vanillas - Measure the pods using the paper band divided into centimetre. According to the pod length, 14 cm and more, 12 to 14 cm corresponds to different trays.
19) Packaging	- Starting with the centre, place 7 to 8 well straight pods. Add the same pods length while directing the stick to the top and the punch towards the interior - Tie the bunch at both ends and at the centre - Place the bunches in boxes isolated with greaseproof paper - Take out the ties placed at the ends one month later. If vanilla did not suffer damage, it can be sold



#### 4.3 Organoleptic qualities and tests hedonic:

Precise organoleptic criteria must be established to guarantee conformity with the highest quality of the product:

- Flavour (compared to the vanillin content, for example), at the flavour level, the Bourbon vanilla from Madagascar is very rich in flavours compared to the Mexican flavour which has a softer character. The Reunion Island beans deliver sweet and grassy notes, those of the Comoros point to balsamic vinegar. Tonga, slightly lower in quality, has slightly acidic notes. With the must of vanillas, Tahitensis, it appears very particular by its musky flavour. Finally, the vanilla of Indonesia and Bali is the least expensive on the market and unfortunately is very low in quality

- pod length;
- Pod colour;
- pod shape;
- Texture (compared to the water content).

Many criteria can be quantified and validated by hedonic tests to determine the criteria which make the superior quality of Red Label Reunion Island vanilla.

#### **Conclusion**

Does the future of the Reunion Island vanilla call for the Red Label?

According to the economic survey, it would add great value to develop and certify the Reunion Island vanilla as a Red Label. The technical study confirms the feasibility of this labelling. Now, this stage cannot be carried out without sensitizing and the co-operation of the vanilla growers and the processors. However, they must respect strict steps according to a specific schedule of conditions.

This label would make it possible to confirm the higher quality of the Reunion Island vanilla, reflect the local producers' traditional know-how. It would also allow facing the competition in the year to come. Perhaps this Red Label would encourage the vanilla growers to increase their production.



## Reference

### Ouvrages :

**Alain DE FLORIS** 2001, « Vanille Bourbon, parfum d'une île : la Réunion ». Collection Trésors d'Outremer. Editions Noor Akhoun ;

**Catherine DE SILGUY** 1998, L'agriculture biologique de, Que sais-je ; 2632, Presses universitaires de France ;

**Jean-paul COMBENEGRE** 1995, Les signes de la qualité des produits agroalimentaires / Jean-Paul Combenègre, Ed. France agricole ;

**Monique TALON** 1960, « Contribution à l'étude du vanillier à l'île de La Réunion », faculté des sciences de Marseille

**Marie-Christine GRASSE** 1993, « Vanilles et orchidées » Musée international de la parfumerie. Edition Edisud ;

**Raoul LUCAS** 1990, « La Réunion île de vanille », Océan Editions ;

**Serge OUILICI** 2003, Les auxiliaires des cultures fruitières à l'île de La Réunion ; Éditions CIRAD : Chambre d'agriculture de la Réunion.

### Sites Internet :

[http://www.cpi.asso.fr/version2/filieres\\_agriculture\\_02.htm](http://www.cpi.asso.fr/version2/filieres_agriculture_02.htm)

<http://chez.mana-online.pf/~colhitia/fr/frflore/frvan/frvan.htm>

<http://ospiti.peacelink.it/anb-bia/nr348/f02.html>

<http://www.rajf.org/concurrence/1998/98d32.php>

<http://www.agriculture.gouv.fr/>

<http://www.wagri.fr/>

<http://www.educagri.fr/onea/bilan01.htm>

### Autres source :

- Chambre de l'Agriculture, Monsieur BOITA,
- Maison de La Vanille, Monsieur De FLORIS

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