



National Agricultural Research Institute

An Introduction to Vanilla



**NARI TOKTOK
KER001E**

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Copies of this toktok and further information
can be obtained from:



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THE INSTITUTE

The National Agricultural Research Institute (NARI) was established by an Act of the National Parliament of Papua New Guinea in July 1996 as a publicly funded, statutory research organisation, to conduct applied and development oriented research on food crops, alternative food and cash crops, livestock and resource management issues. Besides applied and adaptive research, NARI is responsible for providing authoritative technical, analytical and diagnostic services and up-to-date information to the entire agriculture sector in PNG. The major targets are the smallholder semi-commercial farmers in the country.

The mission of NARI is to contribute, through applied research and technical services, to the development of the agriculture sector and realisation of the national goals by identifying, adapting and transferring agricultural technologies and information, so as to:

- Enhance the productivity, efficiency and sustainability of the smallholder agriculture, and
- Improve farmer income, food security and welfare of Papua New Guineans and the nation.

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a bean is when they are still dark green, with only the tip turning yellow (for *Planifolia Vanilla*). If the beans are harvested too early, very little aroma develops and the quality will be very poor; if harvested too late, they split and give poor quality. For *Tahitensis Vanilla* the beans are harvested when they are one third green, one third yellow and one third brown.

Yields may fluctuate from year to year. Yields of 2-2.5 t/ha per year of fresh beans (which is 500-600 kg/ha per year of cured beans) during a crop life of about seven years can be achieved, but much lower yields are common.

The curing process of beans should begin within no more than two days after harvesting and consists of initial scalding, sweating, drying and curing. The entire curing process will last for 14 weeks. Good quality cured beans should be dark brown, long, flexible, oily, smooth and aromatic.

This toktok introduces the crop *Vanilla*. For more detailed information please refer to the entire toktok series of *Vanilla* by NARI LAES Keravat.

climates are found on tropical islands within 20°N and 20°S. On Java (Indonesia) vanilla can be cultivated up to 400-700 m above sea level.

Vanilla requires fertile and well drained soil, the vines grow in mulch which is spread on top of the soil. The site of land for vanilla cultivation should preferably be slightly sloping. Partial shade is necessary and is usually provided by small trees up which the vanilla vines are grown (called support trees).

Commercial vanilla is propagated by vine cuttings. Vanilla flowers are produced on shoots which hang down from the vanilla vines. Vanilla usually starts flowering three to four years after planting and reaches maximum production after seven to eight years.

A dry period will initiate flowering. Usually a plant flowers over a period of two months. Flowers open early in the morning and close in the afternoon. If pollination does not occur, the flower withers and drops in one to two days. Outside its central-American homelands the bees and humming birds, which are necessary for the pollination of vanilla flowers are absent. Therefore, pollination of commercial cultivated vanilla has to be carried out by the farmer by hand.

The ripe vanilla beans are hand-picked seven to nine months after flowering. The right time to harvest

Vanilla – An important Cash Crop for PNG

Farmers throughout the country are diversifying their farming practices in order to increase their cash income and so improve their livelihood and well being. The spice vanilla is currently the most important alternative cash crop and there is a rapidly increasing interest of farmers in vanilla growing in all lowland and some highland areas of Papua New Guinea.

Based on observations, reports and NARI's findings from the provincial and national consultations with farmers and stakeholder conducted in 2001, there is a general lack of knowledge and appreciation on the areas suitable for growing vanilla in PNG and on most of the crucial aspects of vanilla cultivation and curing techniques. Furthermore, the quality of PNG vanilla is variable and often very poor. This is a serious threat to the future of the emerging vanilla industry.

There is an immense need for information and training on where to grow vanilla types and the correct cultivation techniques. Topics to address include: *Vanilla Species and where to grow them in PNG, Planting Vanilla, Vanilla Vine Training, Mulching, Flower Induction, Pollination, Harvesting and Curing of Vanilla Beans, etc.*

In order to support and strengthen the emerging vanilla industry, which has to compete with long established vanilla growing countries on a limited world market, more emphasis needs to be placed on proper cultivation and curing techniques to produce top quality vanilla under PNG conditions.

The Wet Lowlands Islands Programme of the National Agricultural Research Institute (NARI) at the Lowlands Agricultural Experiment Station (LAES) Keravat provides information about the most important issues concerning vanilla cultivation and processing in their toktok information series on vanilla.

Contact NARI LAES Keravat for information on vanilla toktoks, publications and training courses available – for contact details refer to back page.

An Introduction to Vanilla

Commercial vanilla species are native to south-eastern Mexico, Guatemala and other parts of Central America and the Antilles. Vanilla is a large tropical climbing plant that belongs to the orchid family and is the only genus in the family which has species that are agricultural crops.

The major use of vanilla fruits (called 'beans'), or the extract derived from them, is in the flavouring of chocolate, biscuits, confectionery and ice-cream.

The poorer qualities of vanilla beans are used for aroma in tobacco in Java and for perfumes and fragrances.

Madagascar is by far the world's largest producer and exporter of natural vanilla with a vanilla quality considered as the most distinctive and flavourful. This is due to a particular combination of climate, geography, know-how and processing techniques.

Vanilla is also produced in Indonesia, the Comores, Tahiti, Mexico, Tonga and more recently in parts of Africa, Papua New Guinea and China.

The world market for vanillin (the flavouring compound in vanilla beans) is increasing slowly. Natural vanillin has to compete with synthetically produced vanillin. On the world market there is an increasing demand for natural flavouring substances. It is expected that this will increase the demand for natural vanilla. Currently natural vanillin supply is lagging behind demand, which is why vanilla prices are currently high. The main reason for this was a severe damage to vanilla plants by a hurricane in Madagascar. The price for vanilla is likely to drop in the future as world production of vanilla increases.

Vanilla grows best in warm, moist climates without a pronounced dry season. Rainfall is preferably up to 2,000-2,500 mm/year and evenly distributed. A drier period of two months improves flowering. Such