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National Agricultural Research Institute

Vanilla Curing



**NARI TOKTOK
KER018E**

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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.

This toktok was written by Gadi Ling, NARI Wet Lowlands Islands Programme in June 2003. The material presented is based on the best information available at the time of printing (November 2003).

Night 3-15: 'In Box' Sweating

- Sweat the wrapped beans overnight in the insulated box at 40-60°C

Days 16-100: 'In Shed' Curing and 'In Box' Curing

- When bean moisture content falls to 50%, slowly dry beans in open trays in a well ventilated, dry room
- Inspect beans daily
- Check moisture content
- Put beans in the sun to dry for an hour or so if they have taken up moisture and remove any mouldy beans
- When moisture content falls to 18 to 25%, put in lined boxes to finish curing
- Inspect beans in conditioning boxes weekly to check moisture content, moulds and pests, remove damaged beans and re-dry in the sun if necessary

Time required for Curing Activities

The following is a guide to the time required for each step of vanilla curing. Note that some of the times will vary depending on weather conditions. The required time commitment to cure a batch of harvested beans will be on average a hundred days (over three months). During this time the curer needs to pay full attention to the curing process, which may be difficult for many farmers.

Day 1: Killing

- Harvest ripe beans only
- Grade and sort the vanilla beans
- Kill by scalding beans in hot water at 63°C for about three minutes
- Wrap in blanket and put in insulated box (esky)

Day and night 1-2: 'In Box' Sweating

- Keep the wrapped beans in the insulated box hot (40-60°C) for two days to sweat

Day 3-15: Curing Phase

- Sun dry surface of beans (one to two hours)
- Wrap in sun for rest of sun hours (60°C)

Vanilla Curing

Vanilla curing is not an activity that every vanilla farmer should try to do. This is because very few people have the knowledge, skills, patience and willingness to give on-going attention to the details that are necessary to produce high quality cured vanilla. Processing vanilla is a seven day a week job for three to four months a year.

NARI LAES Keravat recommends that most farmers would do best to sell their ripe vanilla beans to professional curers in their area. This may be another farmer, a cooperative of which they are a member or a buyer/exporter.

Curing of Ripe Vanilla Beans

Curing of vanilla beans is one of the most important processes affecting the final quality of the cured beans. If it is not done properly very poor quality vanilla will be produced even from beans that were of good quality at harvest.

The reason that vanilla beans are cured is to produce as much aroma (smell) and flavour (taste) in the beans as possible. When the beans are mature and harvested, there is very little vanilla aroma and flavour in them, this will be formed as the beans are cured.

Vanillin is the main compound in cured vanilla beans that produces the aroma and flavour. The shiny oily or glossy appearance of good quality cured beans is due to the high vanillin content in the beans and is used to assess the quality of cured beans.

Good quality cured beans should be long, shiny, oily, dark brown to black in appearance and free of moulds and pests. To achieve this, a lot of care needs to be taken during the harvesting and curing of the beans. Cured beans with little vanillin content are dull and lack shine.

Very little aroma and flavour can be produced from immature beans. This is why it is important to pick vanilla beans when they are mature as described in the NARI Toktok 'Harvesting Vanilla'. Unripe beans will end up as poor quality, dry, hard beans with very little aroma and flavour when cured.

The curing process recommended in this toktok is designed to produce as much aroma and flavour as possible in the vanilla beans. To achieve this, the beans have to be kept at the right temperature and the right moisture level for the correct length of time.

Nine important steps to remember

1. Only harvest ripe beans as explained in the NARI 'Harvesting Vanilla' toktok
2. Grade and sort the beans before curing
3. Scald the beans in hot water at 63°C for about three minutes
4. When sweating beans, use an insulated box (esky) and keep the temperature at 40-60°C
5. During the sun sweating phase only dry the surface of the beans (one to two hours), then wrap and leave in the sun to heat up for the rest of sun hours
6. Surface dry and heat the wrapped beans every day until the moisture content falls to 50%
7. Sweat the beans every night until the moisture content falls to 50%
8. Slowly dry the beans in open trays in a well ventilated, dry room when the bean moisture content falls to 50% and inspect beans daily
9. When moisture content falls to 18 to 25% put in lined boxes to finish curing and inspect weekly

Stage 4: 'In Box' Conditioning

Equipment needed

- Well ventilated, dry room
- Shelves
- Hardwood boxes with airtight lids
- Wax paper

What to do

- Line the boxes with wax paper and tightly fill them with the vanilla bundles
- Cover with wax paper and the airtight lid
- Check beans once a week for moisture content, mould and pests
- Re-dry in sun if necessary
- After conditioning the cured beans are packed as per the buyer's requirements and sold

There are four main stages in curing vanilla. These are:

- 1. 'Killing' or 'Wilting' and 'Initial Sweating'** (keeping the beans hot for two days) - this kills the beans and starts the formation of aroma and flavour.
- 2. 'Sun Sweating'** - a quick drying period in the sun is followed by a long exposure to the sun inside a blanket. The bean temperature rises to about 60°C and the beans are kept hot overnight. This is repeated every day for about 15 days until the moisture content of the beans falls to about 50%. This is the most delicate stage of the curing, where changes in temperature can dramatically enhance or slow down the formation of aroma and flavour.
- 3. 'Slow Drying'** - normally carried out inside a well ventilated room, until the bean moisture content falls to about 18 to 25%. This further increases the vanillin content of the beans.
- 4. 'Conditioning'** - the beans are stored in airtight containers for a period of about three months to allow the full development of the aroma without any further loss of moisture.

There are a number of methods used around the world to cure vanilla. Good quality beans can be

obtained from different curing techniques, as long as the stages described before are undertaken.

NARI LAES recommends that vanilla be cured using the **Bourbon method**. This method will consistently produce good quality cured beans from both Planifolia and Tahitensis vanilla under PNG conditions. The Bourbon method is described below.

Vanilla Curing Equipment & Procedures

The following outlines the equipment and the curing techniques needed to properly cure vanilla to premium export quality.

Stage 1: Hot Water Killing (Scalding)

Equipment needed

- Saucepan or container to heat water
- Gas burner or fire
- Mesh basket for beans
- Thermometer
- Watch
- Insulated box A (esky)
- Blankets and/or plastic sheets

What to do

- Harvest ripe beans as described in NARI toktok 'Harvesting Vanilla'

- Beans are checked every day for moisture content and mould
- When the bean's moisture content falls to 18-25% (the beans are flexible when rolled between the fingers, but there is resistance and no soft feel inside), they are bundled together with vanilla beans of similar size and quality ready for 'In Box' conditioning



- As soon as the vanilla surface is dry, re-wrap the beans in blankets or plastic and leave in the sun under the clear roof to heat and continue sweating
- Store the vanilla in the insulated box B (esky) overnight
- Bottles of hot water (63°C) can also be put in the insulated box B to help keep the beans warm

Repeat this operation each day for 12-15 days, until the vanilla moisture content falls to 50%. When the bean's moisture content falls to 50%, they are wrinkly and when rolled between the fingers have a soft feel inside. Above 50% moisture content, you will feel some stiffness inside the bean.

Stage 3: Slow In Shed Drying

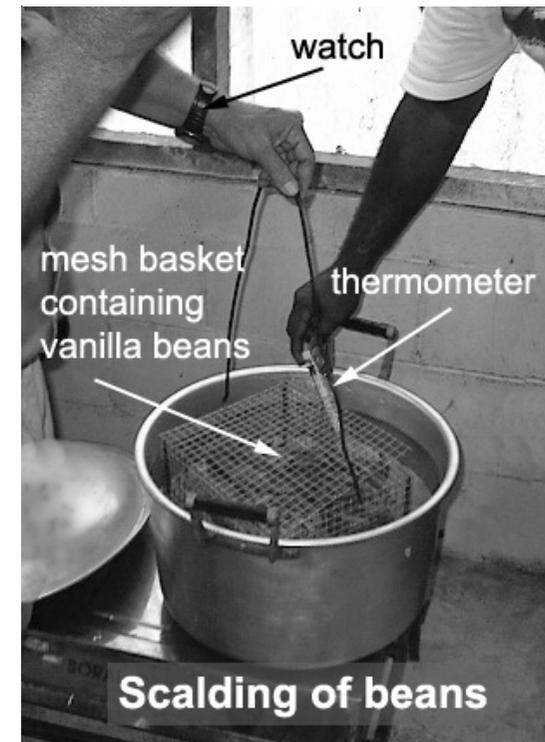
Equipment needed

- Well ventilated, dry room
- Shelves
- Trays

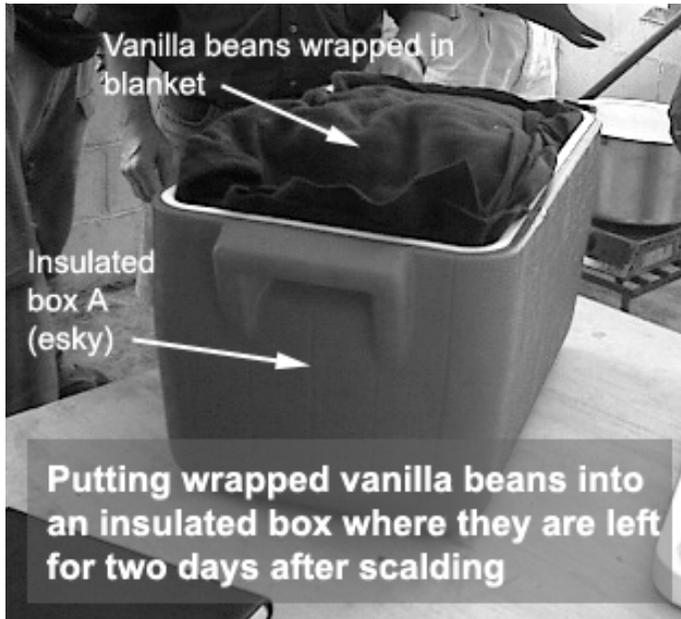
What to do

- When bean moisture content falls to 50%, they are placed on open trays in a well ventilated, dry room

- Sort vanilla beans by type, size and quality (this is called grading)
- Half fill the mesh basket with the same grade of vanilla beans
- Heat water to 63°C and check the water temperature with the thermometer
- Scald the beans by putting the mesh basket with vanilla beans in the hot water for about three minutes (time with the watch)



- Place the hot vanilla beans into a blanket or plastic sheet, wrap tightly and store in the insulated box A for two days (close box the with the lid)
- Bottles of hot water (63°C) can also be put in the insulated box to help keep the beans warm



Stage 2: Sun Sweating

Equipment needed

- Trays
- Blankets and plastic sheets
- A sunny area covered with clear roofing or plastic (preferably with benches under it)
- Insulated box B (esky)

What to do

- After 48 hours (two days) in the insulated box A, open the box and put the beans in the sun under the clear roof until the surface water on the beans dries (one to two hours)

