



**1<sup>st</sup> PNG National Workshop on the MSG Green Trade Project**  
*31 May, 2022 Lamana Hotel*

**TOPIC: International Food Standards;  
Viewpoint on Voluntary Sustainability Standards (VSS) for Green Trade  
and what steps to take to develop Vanilla VSS**

• By

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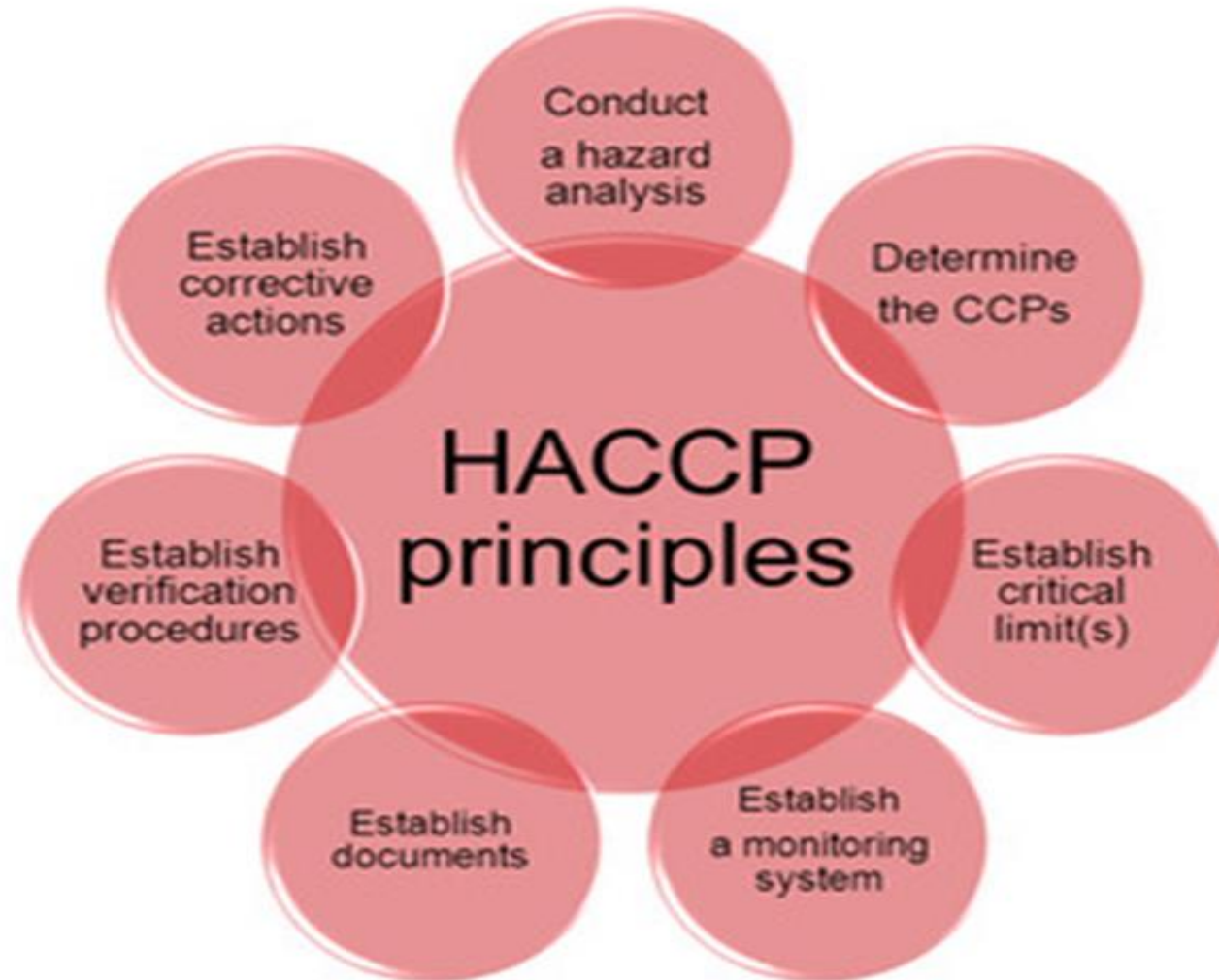
# PRESENTATION OUTLINE

- Background on Codex Alimentarius International Standards
- Steps to be taken to develop Papua New Guinea Standard for Vanilla

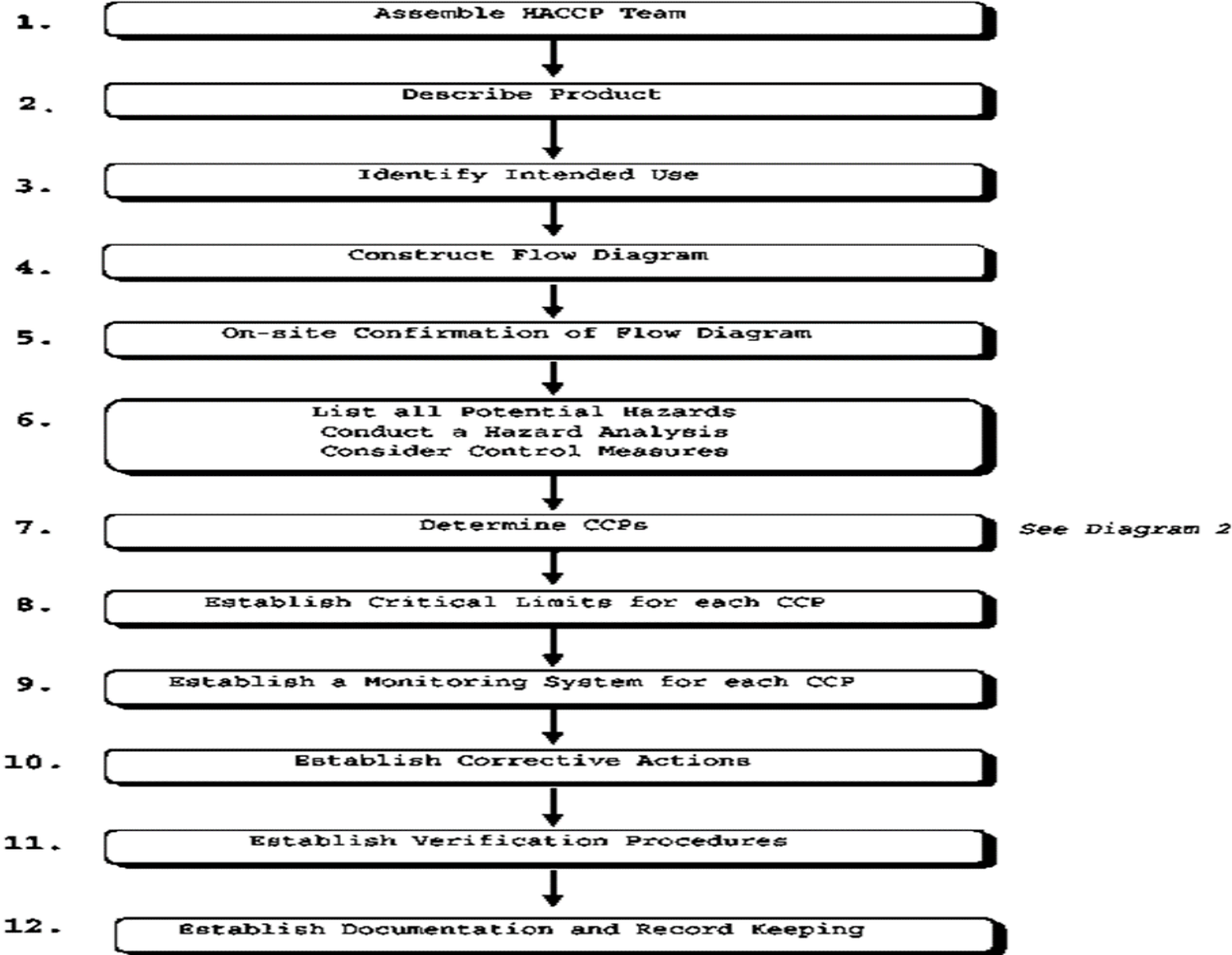
# General Background on Codex Alimentarius International Food Standards

- Codex Alimentarius Commissions (CAC) was created in 1963 by FAO and WHO
- Aim was to develop International Food Standards to Protect Health of Consumers & Facilitate trade
- Currently 189 countries are members of CAC including the European Union
- PNG became member of CAC in 1989
- Codex Contact Point (CCP) was established under DAL in 2001 by NEC
- DAL as NCC Secretariat for PNG facilitate National, Regional and International Codex Committee meetings
- Agro Food Safety & Codex (PNG) is governed by Agro Food Safety & Codex /Sanitary & Phytosanitary (SPS) Compliance Policy (2011) in alignment with Food Sanitation Act (1991), Food Regulation, National Food Bill, NISIT Food Code & National Trade Policy 2017.
- In the past coordinated EU EDES Food Safety Programs and Coordinated Codex Regional meeting for CCNASWP in PNG, currently WFSD on 7 June 2022

# Codex HACCP Principles for VSS



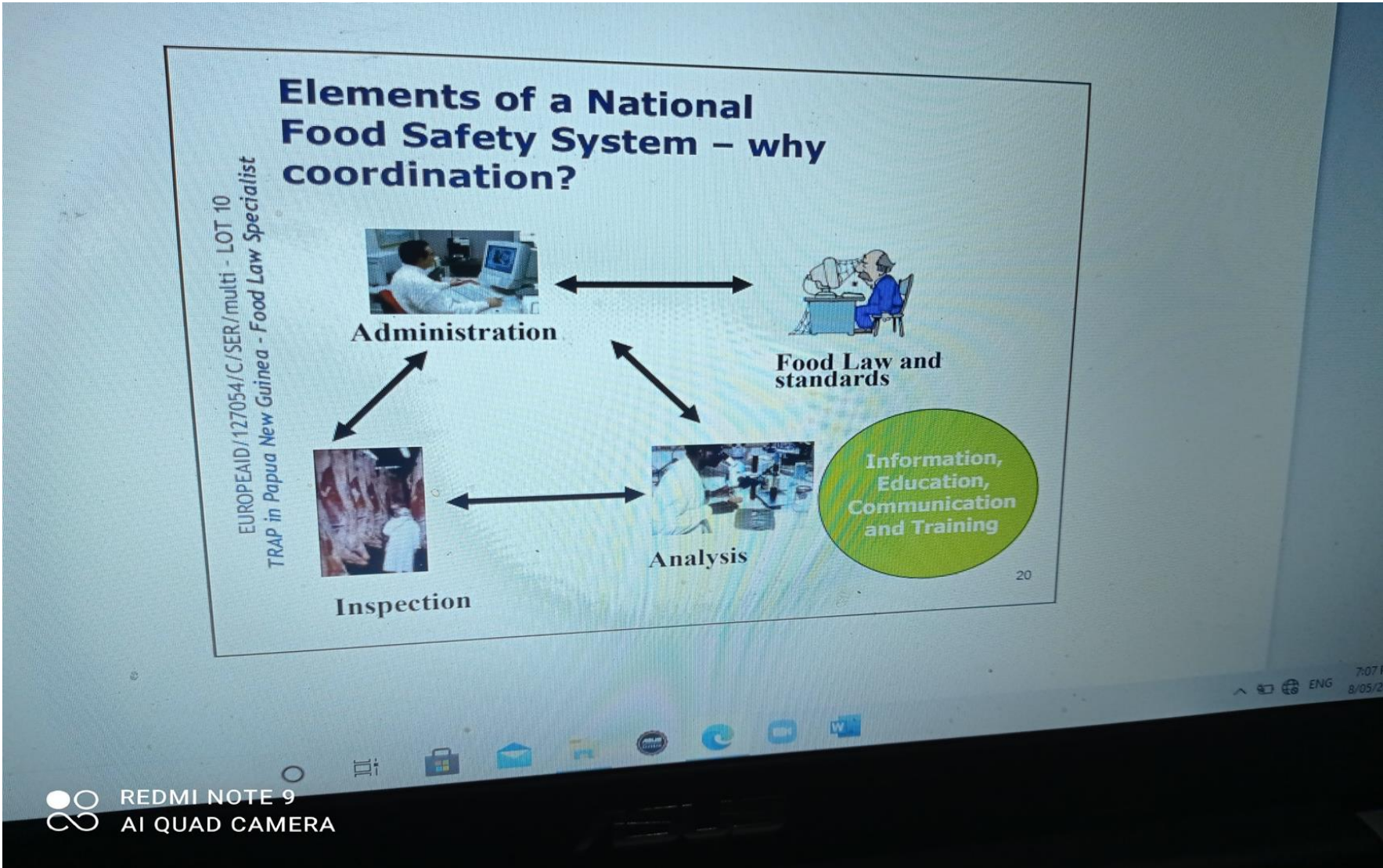
# DIAGRAM 1. LOGIC SEQUENCE FOR THE APPLICATION OF HACCP



# Food Safety From Farm to Fork



# Elements of National Food Control System



# TRACEABILITY

- The product must indicate where it has been grown, the geographical location, how it is grown (organic, etc), how it has been manufactured, transported and traded
- Traceability information gives customers great confidence in continuing to purchase the products for consumption
- It helps the food value chain in determining a hazard if any disease outbreak occurs or easiness for food recall



# LABELLING

- Labelling requirement is very essential to attract consumers
- It also contains various food ingredients used in producing the food product
- Nutritional composition of the product
- It indicates the expiry date, read to use date or best before or buy dates

# Steps to be taken to develop Papua New Guinea Standard for Vanilla

- Indicate vanilla growing areas in PNG



# Good Agriculture Practices (GAP)

**LUKAUTIM VANILLA BLO YU**

**CONTENTS:**

1. Temperature, Humidity, Soil PH
2. Cuttings
3. Planting
4. Cultivation
5. Pollination
6. Pests, Disease, intruders
7. Harvesting
8. Curing, Drying, Conditioning
9. Grading & Quality Control
10. Selling in PNG
11. Exporting; license, global buyers
12. Pricing & Marketing
13. Contacts of buyers in PNG & Overseas

*Tok Pisin*  
*English*

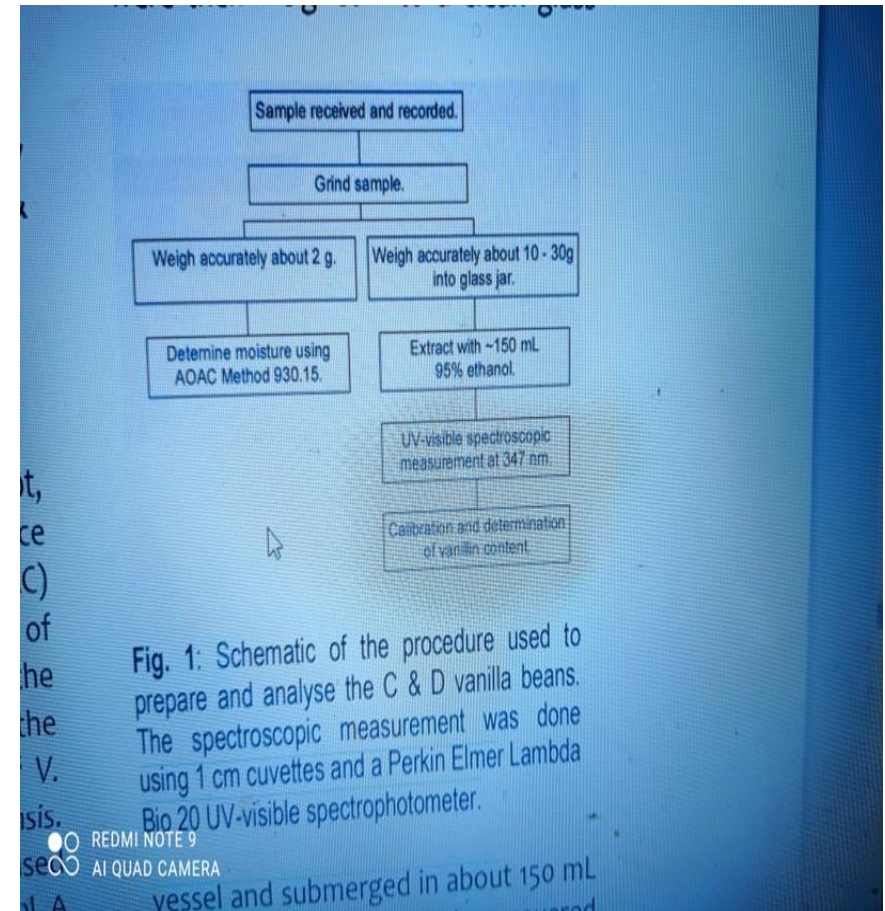
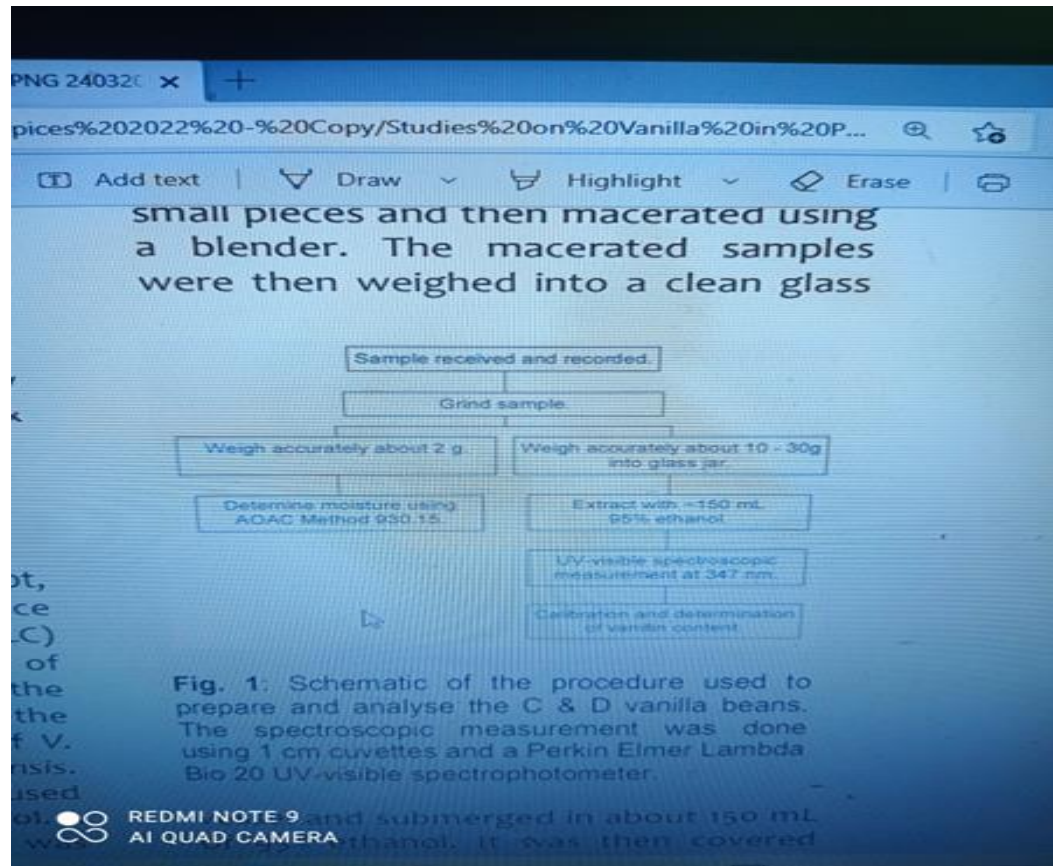
**Olgeta toktok yu nidim bilong planim Vanilla na Salim**

[www.pngsme.org](http://www.pngsme.org) | [info@pngsme.org](mailto:info@pngsme.org) **K50**

# Basic requirements for growing Vanilla in PNG

- **The basic requirements of growing Vanilla are as follows;**
  1. **Temperature must be between 18 – 29 Degree Celsius;**
  2. **Humidity must be around 85%;**
  3. **The recommended vanilla cuttings must be around 50 cm long;**
  4. **The Soil pH must be around 6.6 – 7.5;**
  5. **Fill the pot or soil with bark, moss or surrounded by coconut husks;**
  6. **Prepare trees/stakes for the plant to climb because, it is a crawling plant;**
  7. **Water it daily with liquid fertilizer with high Nitrogen level. This reduces the Vanilla Shoot Blight Disease;**
  8. **It takes about 2-7 years to grow in order to bloom;**
  9. **Vanilla usually blooms when it is about 6-12 m long;**
  10. **It takes only one day to flower so watch carefully and hand-pollinate it, usually in the morning around 11 am;**
  11. **The pods appear within two months of pollination;**
  12. **It takes around 6 – 9 months to mature;**
  13. **Pick the beans as soon as they turn yellow; and**
  14. **Process the bean using Quality Processing Techniques**

Samples of Vanilla needs to be tested at the designated Accredited National Laboratory prior to exports to enhance quality



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For the determination of vanillin, the samples were cut into small pieces and then macerated using a blender. The macerated samples were then weighed into a clean glass

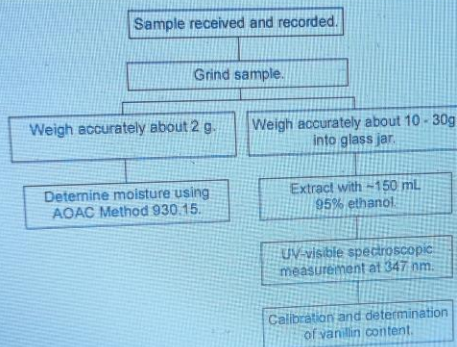


Fig. 1: Schematic of the procedure used to prepare and analyse the C & D vanilla beans. The spectroscopic measurement was done using 1 cm cuvettes and a Perkin Elmer Lambda Bio 20 UV-visible spectrophotometer.

phenylpropane from different countries. A general tendency for variable values for vanillin is noted, e.g. for Mexico, the values reported include 2% [2, 37],

tree in advance can be bypassed, thereby allowing the grower to start earning money at least 6 months earlier than expected. Also, it has been

Table 2: Vanillin content of *V. planifolia* from various countries. Source: [37]. Key: \* = values denoted are from [39] for top grade beans. n/s = not shown, + = from [36].

Country	Length of pods (cm)	% Vanillin	% Moisture
Reunion	18	2.10	37
Comoro	16	2.42	24
Madagascar	17	2.28	39
Seychelles	14	2.32	36
Uganda	14	1.63	23
Tahiti	9	1.52	41
Mexico	n/s	2.0	39
Mexico	21*	>2.5*	21*
Guadeloupe	n/s	<1.0	17
Indonesia <sup>+</sup>		2.75	

Environment Papua New Guinea, Vol. 2, Issue 3 (September, 2013)

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# Dept of Applied Science Unitech Lab Analysis procedure

- For the determination of vanillin, the samples were cut into small pieces and then macerated using a blender. The macerated samples were then weighed into a clean glass vessel and submerged in about 150 mL of 95% ethanol. It was then covered with a tight-fitting lid and kept in a dark place for up to 1 week, shaking every 2 days or so. The liquid extract was decanted and filtered to pass 0.45  $\mu\text{m}$ . The filtered extract was read using UV-visible spectroscopy at 347 nm. Calibration and quantification was effected using the normal external standards as well as standard addition methods.
- **RESULTS AND DISCUSSION** Vanillin is UV-active at 347 and 348 nm [39]. Various wavelengths including 348 nm were used to analyse Fig. 1: Schematic of the procedure used to prepare and analyse the C & D vanilla beans. The spectroscopic measurement was done using 1 cm cuvettes and a Perkin Elmer Lambda Bio 20 UV-visible spectrophotometer.

# Some Research Done by Dept of Applied Science from PNGUNITECH

- This paper presents some preliminary results on the vanillin content of cured and dried *V. planifolia* beans from Nasuapum (Morobe Province); and Wewak and Maprik (East Sepik Province) using UV spectroscopy at 347 nm, the vanillin content of the Wewak sample (1.08%) fell within the worldwide vanillin range (1.3–3.8%) for commercial grades. The samples from Nasuapum (0.97%) and Maprik (0.68%) fell outside the above range and would have been rejected by importers despite being physically assessed as 'A' grade. The method of standard addition is recommended for quantification and the mean recoveries for the spikes were 97% (94–101%), 97% (92–99%) and 78% (53–87%) for the samples from Wewak, Maprik and Nasuapum, respectively. On the other hand, the moisture content of all samples fell within the world range (17–41%). The variable vanillin values denote a need for standardised curing, drying and quality control.



# Some Research Done by Dept of Applied Science from PNGUNITECH (Cont'd)

- The vanillin contents of the samples based on the experiments performed were as follows: Nasuapum = 0.97% m/m, Maprik = 0.68% m/m and Wewak = 1.08% m/m. The variable vanillin values highlight the need for a standardised mechanism for the curing, drying and storage (packing) of vanilla beans. The moisture contents for all samples were within the world range. Further work is recommended.

# Recommendations for development of VSS in PNG

- Align and adopt Codex International Food Standards Principles to develop Papua New Guinea National Food Standards such as VSS
- Adopt Good Agriculture & Good Manufacturing practices (GAP & GMP) to produce a desired product
- Laboratory testing of food samples are utmost important prior to exportation of commodities
- Ensure there is good curing, drying, proper storage procedures in place to maintain vanilla product quality

# END

- Any Questions?