



## TERMS OF REFERENCE

|                       |                                                                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Activity Title:       | Entomologist to Support the Validation and Operationalisation of Vapour Heat Treatment (VHT) Protocols for Fruit Flies in the Solomon Islands |
| Estimated Duration:   | 7 months                                                                                                                                      |
| Estimated Budget:     | AUD 44,000                                                                                                                                    |
| Location:             | Remote travel to Solomon Islands                                                                                                              |
| Estimated Start Date: | November 2026                                                                                                                                 |
| Reporting to:         | Trade in Goods Adviser                                                                                                                        |

### I. BACKGROUND

The Pacific Agreement on Closer Economic Relations (PACER) Plus aims to support sustainable economic development across the Pacific by improving trade opportunities, strengthening productive capacity, and increasing participation of Pacific businesses in regional and international markets.

The Solomon Islands has strong potential to expand exports of fresh horticultural products, but fruit fly pests remain a major phytosanitary barrier to accessing regional and international markets. Importing countries require scientifically validated phytosanitary treatments before permitting the import of fresh fruit and vegetables.

Biosecurity Solomon Islands (BSI), under the Ministry of Agriculture and Livestock, has established a Vapour Heat Treatment (VHT) facility to treat fruit fly host commodities. However, scientific validation is required to demonstrate the effectiveness of VHT against priority fruit fly species before the facility can support export market access negotiations.

Through PACER Plus, this consultancy will engage an Entomologist to conduct laboratory research, determine the thermal tolerance of priority fruit fly species, validate VHT treatment protocols, and strengthen national technical capacity. The findings will support compliance with international phytosanitary standards and facilitate future market access for Solomon Islands fresh produce, contributing to PACER Plus SPS objectives and national agricultural export priorities.

### II. OBJECTIVE & SCOPE

The main objectives of the consultancy are to:

1. Generate scientifically robust evidence on the thermal tolerance of economically significant fruit fly species in the Solomon Islands using Vapour Heat Treatment.
2. Develop validated Vapour Heat Treatment protocols and Standard Operating Procedures that comply with relevant International Standards for Phytosanitary Measures (ISPMs) and support export market access.



3. Strengthen the technical capacity of Biosecurity Solomon Islands through mentoring, knowledge transfer and practical training on fruit fly diagnostics, laboratory testing and VHT validation.

To achieve the above objectives, the Consultant is required to:

- I. Desktop Review
  - a. Review existing scientific literature, relevant international standards, and available protocols relating to heat treatment of economically significant fruit fly species, including VHT and other relevant phytosanitary treatments;
  - b. Liaise with BSI to assess existing laboratory capacity and facilities, and plan the laboratory activities required to support the assignment;
  - c. Based on the review of relevant international standards, approved treatment protocols and importing country requirements, identify the scientific evidence and data validation requirements applicable to VHT treatment development. Advise BSI on the appropriate process for validating and obtaining technical acceptance of the research findings, including requirements for independent technical review, peer review, additional validation trials, or other recognised forms of scientific verification; and
  - d. Prepare an Inception Report detailing the proposed methodology, workplan, sampling strategy, laboratory testing protocols, implementation schedule, resource requirements, and risk management approach.
- II. In-Country Solomon Islands - Undertake field and laboratory investigations to identify priority fruit fly species, determine their biology and life cycles, and establish thermal tolerance thresholds for all economically important life stages.
- III. Design, implement and analyse Vapour Heat Treatment validation trials and develop scientifically defensible treatment schedules for priority export commodities that comply with IPPC and ISPM requirements.
- IV. Develop commodity-specific Vapour Heat Treatment protocols, Standard Operating Procedures, quality assurance measures and technical reports suitable for supporting phytosanitary recognition and market access negotiations, while mentoring BSI staff throughout the assignment.
- V. Ensure all methodologies, protocols, training materials and outputs incorporate Gender Equality, Disability and Social Inclusion (GEDSI) principles by promoting equitable participation of women, youth and persons with disabilities in capacity-building activities where appropriate.



### III. DELIVERABLES

The Consultant will deliver the following outputs:

1. Inception Report and Detailed Work Plan.
2. Technical Report on Fruit Fly Biology and Thermal Tolerance Studies.
3. Validated Vapour Heat Treatment Protocols, Standard Operating Procedures and Quality Assurance Procedures.
4. Capacity Building Materials, Mentoring Records and Training Report.
5. Final Scientific Report suitable for submission to trading partners to support phytosanitary recognition and market access negotiations.

All outputs shall be submitted electronically in Microsoft Office format, or another format agreed by the PPIU.

### IV. TIME AND PAYMENT SCHEDULES

The Activity shall be completed within a period of no long than seven (7) months, according to the indicative timeframes below. Exact commencement and completion dates, as well as the scope of work, may be amended in consultation with PPIU and Biosecurity Solomon Islands.

| No. | Deliverables                                                                                                                                                          | Indicative Time Frame (delivered by) | Payment Schedule |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------|
| 1.  | Inception Report and Detailed Work Plan.                                                                                                                              | November 2026                        | 10%              |
| 2.  | Technical Report on Fruit Fly Biology and Thermal Tolerance Studies.                                                                                                  | December 2026                        | 25%              |
| 3.  | Validated Vapour Heat Treatment Protocols, Standard Operating Procedures and Quality Assurance Procedures.                                                            | February 2027                        | 25%              |
| 4.  | Capacity Building Materials, Mentoring Records and Training Report                                                                                                    | April 2027                           | 10%              |
| 5.  | Final technical report suitable for use by Biosecurity Solomon Islands as supporting scientific evidence for market access submissions and phytosanitary negotiations | June 2027                            | 30%              |

**Note:** Travel expenses for the Consultant(s) are included in the Consultancy Fees. Costs for stakeholder consultations must have prior approval from the PPIU and must follow the PPIU Procurement Policy.



## V. REPORTING

- The Activity will be supervised by the PACER Plus Activity Supervisor in collaboration with the Director of Biosecurity Solomon Islands.
- The Consultant will report regularly to the Activity Supervisor and the Director of Biosecurity Solomon Islands to ensure deliverables are completed according to agreed quality standards and timelines.
- Regular progress meetings with PPIU, Biosecurity Solomon Islands and the Ministry of Agriculture and Livestock will be held throughout the assignment to review progress, discuss technical issues and agree on solutions where required.

## VI. QUALIFICATIONS, SKILLS AND EXPERIENCE REQUIRED OF CONSULTANT(S)

Preference will be given to Pacific-based consultants who possess the following qualifications, skills and experience.

### 1. Qualifications

- Postgraduate qualification (Masters or PhD) in Entomology, Applied Entomology, Plant Protection, Agricultural Science or a related discipline.

### 2. Skills & Experience

- Demonstrated expertise in fruit fly biology, ecology and laboratory diagnostics.
- Proven experience designing and implementing thermal tolerance studies or phytosanitary treatment validation programmes.
- Experience developing phytosanitary treatment protocols, laboratory procedures and Standard Operating Procedures aligned with IPPC and ISPM requirements.
- Experience supporting National Plant Protection Organisations (NPPOs) or government biosecurity agencies, including preparation of scientific evidence to support market access negotiations.
- Demonstrated experience delivering comparable assignments in the Pacific or developing-country context.
- Excellent written and verbal communication skills.
- Strong analytical and scientific reporting skills.
- Demonstrated mentoring and capacity-building experience.
- Ability to work independently and collaboratively with multidisciplinary teams under tight deadlines.