



Pacific Horticultural and Agricultural Market Access Program (PHAMA)

Technical Report 23: Evaluation of Trial Shipments of Cutflowers and Foliage to Australia (SOLS08)

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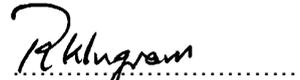

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Abbreviations

Abbreviation	Description
A\$	Australian dollar
ACIAR	Australian Centre for International Agricultural Research
AQIS	Australian Quarantine Inspection Service
AusAID	Australian Agency for International Development
CBD	Central business district
CIF	Cost, Insurance and Freight
DAFF	Department of Agriculture, Fisheries and Forestry
FOB	Freight On Board
FTE	Full-time equivalent
GST	Goods and services tax
ICON	(AQIS's) Import Conditions Database
MAL	Ministry of Agriculture and Livestock
MAWG	Market Access Working Group
MSG	Melanesian Spearhead Group
PHAMA	Pacific Horticultural and Agricultural Market Access Program
SBD	Solomon Islands Dollar
TA	Technical Assistance
URS	URS Australia Pty Ltd

Executive Summary

Solomon Islands has a diverse range of tropical cut flowers, orchids and foliage. Considerable work has been completed under the AusAID-funded Agricultural Livelihoods Program in recent years to develop women's groups to supply cut flowers and foliage to the local market. A logical next step is to develop an export trade.

A scoping study was undertaken by PHAMA in late 2011 to assess the potential for developing cut flower and foliage exports to Australia (PHAMA Activity SOLS04; Technical Report 16). This study, which reviewed supply conditions in Solomon Islands as well as market conditions in Australia, concluded that there was sufficient potential, particularly for selected orchid varieties (Vandas and Spiders) and various forms of foliage (especially Crotons), to warrant further support for trial shipments to test the viability of the export pathway under commercial conditions, and to begin to develop the skills and confidence required for Solomon Islands producers and exporters to initiate a regular trade. This support was provided under Activity SOLS08, the results of which are documented in this report.

In total, three trial shipments of Vanda and Spider orchids, and Croton foliage, were exported in early 2012. The support provided covered post-production handling and marketing activities (field heat reduction, cool storage, sourcing and provision of packaging, development of packing and handling techniques, transport and marketing), with emphasis on developing the capacity of producers and exporters to sustain a commercial operation should this prove viable.¹ Support to growers for necessary improvements in production activities was provided under a separate Australian Centre for International Agricultural Research (ACIAR) funded project (HORT/2011/065) that was purpose-designed to complement the PHAMA activity.

Commercial Viability

A two-step analysis of the profitability of exporting the three varieties to the Brisbane market in Australia was undertaken:

- A base analysis, which incorporated the actual costs incurred in relation to the three trial shipments;
- A modified costing which assumed a reduced cost structure that might be achieved under higher-volume commercial conditions.

Under the base analysis, a significant net loss was incurred for all three product groups.

A range of potential cost-cutting measures were then identified in association with the exporter and growers, in an attempt to improve profitability to an acceptable level. These measures included:

- Reduction of price paid to suppliers for the orchid varieties, from SBD3.00 per stem to SBD1.50 per stem;
- Removal of crotons from the export mix given that they were the largest loss-makers;
- Reduction in amount of labour used to pack the flowers;
- Reduction in storage and packing costs in Honiara;
- Substitution of bubble wrap with clean paper as a buffer;

¹ The Tasking Note for the Activity is provided in Appendix A.

- Use of rainwater rather than more expensive proprietary products for moisture retention, based on the results of the experiments conducted by ACIAR; and
- Increased number of sleeves per box.

Even with this markedly reduced cost structure, profitability of Vandas increased to only A\$0.06/stem, while spiders still showed a loss of A\$0.15/stem. Note that these calculations make no allowance for spoilage, losses, or commercial risk (e.g. non-payment by importers), which would reduce margins further still.

Given that commercial exports of small consignments are clearly not commercially viable, it is recommended that no further action be taken at this stage to develop exports of cut flower orchids from Solomon Islands to Australia.

Technical Viability

An outstanding issue affecting the technical viability of the export pathway concerns the susceptibility of Vandas to cold damage in aircraft holds, and the ability to manage this. Solomon Airlines has indicated its willingness to increase the hold's temperature on request so that damage is prevented, but the reliability of this has yet to be tested. The experience of other importers of tropical flowers to Australia has been that every now and again even experienced airlines fail to maintain the required temperature, which can result in a loss of over SBD50,000 per shipment to the exporter. There is also the issue of competing temperatures requirements of different products being freighted on the same flight.

Quarantine Viability

Due to non-performance by the freight forwarder, none of the three shipments were treated according to required Australian Quarantine Inspection Service (AQIS) procedures on arrival in Brisbane, and these aspects of the pathway have therefore not been fully tested. As a result of this, outstanding issues include:

- Definitive costs for inspection and treatment have not been confirmed;
- Reaction of product (especially the orchids) to fumigation has not been fully tested;
- Effect of fumigation on shelf-life has not been fully tested; and
- Logistics of transporting product (especially timing in relation to meeting prescribed sale schedules) from Eagle Farm through fumigation facilities out to the Rocklea Markets has not been fully tested.

1 Description of Shipments

The flower varieties chosen for the trials were based on the findings of the mission undertaken to the Sydney and Brisbane markets in late 2011 under Activity SOLS04, as follows:

- The trials should concentrate on Vanda and Spider orchids (*Arachnis* spp), especially Vandas. Vandas are unique to Solomon Islands, which is a selling point, whereas Spiders and Crotons have to compete with like-products.
- Two Gingers – commonly called White Jungle Queen and Double Makira – are a second level priority.
- Heliconias, initially the flower-of-choice, are considered a much lower priority, based on the fact that, as a member of the banana family, they are an item of greater quarantine interest. Further, Heliconias have a high freight cost component, with the market requiring a stem length of at least 70 cm (preferably 80–90 cm). The means that any given box of product will be effectively half empty, with most of the shipment made up of just stems.
- The target for marketing should be a wholesaler who will import rather than a retailer (florist) who rarely imports.

From the various interactions with the market, the following strategy was adopted:

- The primary target flower should be Vandas, with Spiders as a second-level priority. Croton foliage would also be shipped, but as a 'filler' given its likely marginal financial profitability.
- The target market for the two flowers, especially the Vandas, should be the repeat market of the wedding season from August to about November.
- To position the flowers for the wedding market, the interim target should be Mother's Day (13 May 2012), as it is mothers who invariably select the flowers for a wedding.
- To test the system and establish the technical, quarantine, and commercial viability, there should be lead-in shipments prior to Mother's Day.
- The logistics should be based around the following timetable:
 - Harvest on Wednesday
 - Ship on Thursday
 - Arrive at the wholesalers on Friday. The wholesalers would revive the flowers with water and arrange for their presentation to the buyers
 - Sell on Monday.

Based on the above, three shipments of Vandas, Spiders, and Crotons to a wholesaler in Brisbane were planned in the lead-up to Mother's Day, as follows:

Shipment #1

- Flowers were picked 11 April, shipped 12 April, delivered to wholesaler 16 April.
- Shipment consisted of four boxes of Vandas, Spiders, and Crotons.
- The main issue that arose from the trial was that the flowers were stored under refrigerated conditions in Brisbane on Friday, Saturday and Sunday nights. The refrigeration damaged the Vandas irreparably but caused only minor damage to the Spiders, and had no impact on the crotons. Neither of the flowers was offered for sale on Monday due to concerns over the damage suffered.

Shipment #2

- Flowers were picked on 25 April, shipped on 26 April, delivered to wholesaler on 28 April.
- Shipment consisted of two boxes of Vandas and Spiders.
- Flowers were stored under benign conditions at the wholesaler's premises and were in good condition for sale on the Monday.

Shipment #3

- Flowers were picked on 7 May, shipped on 8 May, delivered to wholesaler on 9 May.
- Shipment consisted of two boxes of Vandas and Spiders.
- Vandas were damaged due to adverse conditions in the aeroplane's cargo hold. The Spiders were sold at a reduced price.

All shipments were accompanied by either Ms Maedia and/or project staff to monitor quality and out-turn, and document the need for changed procedures for subsequent shipments.

Packaging and product presentation training is described in Chapter 2 below. Packing materials (including sleeves, vials to contain moisture and preservatives, and preservatives) were sourced in Brisbane and evaluated as part of the trials.

2 Lessons Learned

Key lessons learned from the three trial shipments are summarised below:

2.1 Flowers

The first shipment of Spiders was picked too close to full maturity. For Trials #2 and #3, the flowers were picked with an increased number of buds, i.e. further away from maturity (T-7 rather than T-3).

The inter-nodal space on Vandas from Solomon Islands is much longer compared with like-imported flowers. This gives the impression that the flowers do not give as good value-for-money. The solution to this problem lies with some production research. In addition, the stem length of both Vandas and Spiders could be longer.

2.2 Shipping Boxes

Boxes were purchased in Fiji as they were cheaper compared with Australia and entered Solomon Islands duty free under the Melanesian Spearhead Group (MSG) Agreement. Two sizes of boxes were acquired – a larger “outer” accommodating two “inners”. The initial plan was to pack the Vandas and Spiders into the “inners” and Crotons into the “outers”. It eventuated that the “inners” were too big for “outers”. For the second and third shipment only “outers” were used.

2.3 Packing

For Trial #1, only 15 bunches were packed per box. This was based on the assumed fragility of the flower – there had been no previous experience in Solomon Islands of packing Vandas for export. The wholesaler’s advice was to increase the bunch numbers because (i) it will not damage the flowers, (ii) it will reduce movement within the box and thus reduce the potential for damage, and (iii) it will lower the per unit transport cost. For the second and third shipments, bunch numbers were increased to 21 per box. It is possible that bunch numbers could be increased even further.

2.4 Packaging

Flowers were placed in vials that contain moisture to extend the shelf-life of the flowers, and encased in cellophane sleeves. Sleeves, vials, and supporting moisture were purchased in Brisbane. Initially, sleeve size was a guess but by the time of the second shipment the preferred size had been identified. Similarly, the initial size of the vials purchased was a guess but by the third shipment vial sizes for the Vandas and Spiders had been established.

The second shipment resulted in moisture inside the sleeves of the Vandas. This came from evaporation. The condensation formed droplets on the inside of the cellophane sleeve that dropped onto the petals of the Vandas, causing ugly brown spots which prevented the flowers from being offered for sale. This was the first time the wholesaler had observed this phenomenon in a tropical cut flower shipment. As a result, perforated sleeves that allow for the migration of condensation out of the sleeve were purchased.

2.5 Packing for Export

The first shipment took three people nearly 10 hours to prepare. Using a combination of PHAMA and Australian Centre for International Agricultural Research (ACIAR) funding, two packaging workshops for the members of the women's groups supplying the flowers were held, using discarded vials and sleeves, and second-class flowers.

All flowers were hand cleaned. No trimming was required. All stems were placed in vials, the vials being filled with moisture and either gel or Crylis, both of which were purchased in Australia. The flowers were bunched in groups of five, then joined with a rubber band. All bunches were sleeved and then placed individually in the boxes.

2.6 Preservation

The ACIAR-funded research into shelf-life was based on using three moisture mediums – rainwater, gel, and Crylis. The latter two are basically treatments to control the build-up of bacteria in the water, as this is a major cause of shortened vase life. The trials showed that when treated with just rainwater, Vandas and Spiders had an acceptable nine day shelf-life.

Since the gel and Crylis have to be purchased and imported, whereas the rainwater is free, this research provided the basis for an immediate cost saving.

2.7 Harvest to Market

The first two shipments were based on a Wednesday harvest for sale by the wholesaler the following Monday. This meant that the flowers spent two days in storage, albeit benign storage at the wholesaler's site. Eventual sale by florists would be on the Monday through until the Thursday. This requires the flowers to have a shelf-life of at least nine days. This schedule is based on the expressed preference of making the Monday sale, usually the highest priced and biggest volume market day.

The third shipment was based on a Monday harvest for sale on the Thursday. Sale on a Thursday is a trade-off between a lower volume (and price) sale day (but not the lowest), and a gain of two days' shelf-life as the product is not stored over the weekend.

2.8 Pricing

Pricing for the two cut flower orchids was hard to establish because they had not been presented to the market before. Indeed, the uniqueness of the Vanda is its very selling point. The Solomon Islands' Vanda is more like the Hawaiian Vanda than the Asian Vanda. The distinguishing features of the Solomon Islands' / Hawaiian Vanda are its petal size and shape, and the colour of the petal. Some wholesalers and retailers interviewed stated that the petal size, shape and colour of the Solomon Islands' Vanda make it ideal for the bridal bouquet market. To some extent, bridal bouquets are not price sensitive and thus a high price can be charged. Off-setting the distinguishing petal is the "yield" of Solomon Islands' Vanda – that is, flowers per stem. The Solomon Islands' Vanda has a relatively large inter-nodal gap, resulting in far fewer flowers per stem: it looks sparse compared with the Asian Vanda. Given that the bridal bouquet is supposed to look "busy", i.e. overflowing with flowers, a Solomon Islands' bouquet, despite its colour and delicate look, is not a good look. This reduces the price buyers are willing to pay for the Solomon Islands' Vanda. The Spider has near like-flowers from Asia that provide competition. At least five different types of like-Spiders were seen. As with the Solomon Islands' Vanda, the Solomon Islands' Spider has a very low "yield" due to the large inter-

nodal spacing. Crotons are quite common, the main distinguishing point for the Solomon Islands' Croton being its colour. Even then, the speed and ease by which Crotons can be grown to different colours makes the "first foot" advantage only a fleeting one.

Eventually, the following wholesale prices were estimated for the three shipped varieties:

- Vandas A\$5.50 per five stem bunch
- Spiders A\$5.00 per five stem bunch (the Maroon Spider would possible get a little more but its unavailability during the whole of the trial period meant that this could not be tested)
- Crotons A\$0.35 per stem

These are wholesale prices. They have to be then reduced back to a Cost, Insurance and Freight (CIF) price Brisbane, then a Freight On Board (FOB) price Honiara, to, eventually, an exporter buying price in Honiara. The final grower selling price in Solomon Islands would be in the region of A\$3.50 per five stem bunch for Vandas, A\$3.00 per five stem bunch for Spiders, and around A\$0.20 per stem for Crotons.

2.9 Volume

As with pricing, it was difficult to establish the potential market volume for a flower that is just entering the market. The difficulty of estimating volume (and price) is illustrated by the absence of any price reporting system for flowers in Australia. Some wholesalers sell electronically – that is, they do not have a physical auction but use an electronic system of bidding. Some of these wholesalers publish the results of their sales in such a way as to provide non-commercial information. An examination of this data shows: (i) considerable day-to-day variation in prices, and (ii) a remarkable lack of consistency in supply, making trend price trend analysis difficult to achieve. Further, while wholesalers may sell a range of flowers, they tend to specialise in specific flower types, with detailed price information closely guarded.

Eventually, an estimate of 60 five-stem bunches of Vanda per week was made.

2.10 Market Demand

Note that both price and volume estimates were made in the context of highly passive marketing. That is, the flowers were merely displayed on the wholesaler's display bench for inspection by interested parties. For the third shipment, a small hand-out on "flowers in Solomon Islands" was prepared, which the wholesaler emailed out on the Wednesday to garner some interest.

A more pro-active marketing approach is needed as Solomon Islands cannot depend on the wholesaler doing its marketing promotion. Bearing in mind the eventual market is the wedding season from August to November, a possibility is to present the flowers through the various wedding magazines. The plan would be to target some of the advertisements in the magazines, then write to them asking when their next photo shoot is and asking would they like Vandas from Solomon Islands for their next advertisement.

2.11 Timing

Following arrival, the flowers need to be delivered from the airport region in Brisbane to Rocklea, where the wholesaler is located. It is noted that there are other flower wholesalers at the Rocklea Flower Market. Care has to be taken in choosing a courier service that operates a late morning

delivery schedule rather than an afternoon one. This is because most flower wholesalers close for the day by mid-afternoon having started around 03:00 that morning. It is possible that an afternoon courier service will deliver to a closed operation, requiring it to store the flowers overnight, possibly in sub-optimal conditions.

2.12 Business Structure

Various business structures were investigated for the exporting of flowers from Solomon Islands. These included use of a charitable trust (through which the Grassroots Women in Business operate), an association, a cooperative, a community company, and a company registered under the Companies Act. Mr Andrew Sale, the Project's Local Facilitator, has had considerable experience with at least three of the potential structures (cooperative, community company, and commercial company). A community company is a structure unique to Solomon Islands, being a cooperative but with a number of additional features that govern reporting, decision-making, loans and asset management. It was decided that a company under the Companies Act would be the most suitable structure for this situation, and one was duly registered for the purpose by Ms Maedia.

3 Export Viability

3.1 Commercial Viability

A two-step analysis of the profitability of exporting the three flower varieties to Brisbane was undertaken:

- A base analysis, which incorporated the actual costs incurred in relation to the three trial shipments, and assumed an input cost of SBD3.00/stem for the flowers and SBD1.00 for the foliage (based on retail prices in the Honiara market);
- A modified costing which assumed a reduced cost structure, including pricing the flowers at wholesale rates of SBD1.50/stem rather than retail rates.

One-off overhead costs related to organising the activity were treated as a project subsidy in both analyses, and were not included in the costing. Detailed results are provided in Appendix B and Appendix C for the base analysis and modified costing respectively. Results are summarised below.

3.1.1 Base Analysis

Under the base analysis, a net loss was incurred for all three product groups as follows:

	SBD/stem	A\$/stem
Vandas	(8.76)	(1.25)
Spiders	(10.24)	(1.46)
Crotons	(12.41)	(1.77)

3.1.2 Modified Costing

The base analysis was presented to a meeting of Mrs Maedia and around 25 producers who had supplied product for the three trial shipments. A range of cost-cutting measures were identified from this meeting, as follows:

- Reduction of price paid to suppliers from SBD3.00 per stem to SBD1.50 per stem.
- Acquisition price based on options of washed, graded, and packed flowers.
- Removal of crotons from the export mix given that they are the largest loss-makers.
- Reduction in amount of labour used to pack the flowers.
- Reduction in storage and packing costs in Honiara.
- Substitution of bubble wrap with clean paper as a buffer.
- Use of rainwater rather than more expensive proprietary products for moisture retention, based on the results of the experiments conducted by ACIAR.
- Increase in the number of sleeves per box.

Taking this reduced cost structure into account, profitability increases as follows:

	SBD/stem	A\$/stem
Vandas	0.45	0.06
Spiders	(1.02)	(0.15)
Crotons	–	–

In summary, even with a markedly reduced cost structure, profitability of Vandas increases to only A\$0.06/stem, while Spiders still show a loss of A\$0.15/stem. Note that these calculations make no allowance for spoilage, losses, or commercial risk (e.g. non-payment by importers), which would reduce margins further still.

It is also likely that the cost of boxes, sleeves, and vials are understated. This is because they are based on prices paid in Fiji for the boxes, and prices paid in Australia for the sleeves and vials. There is no allowance made for the freighting of the products from Fiji and Australia to Solomon Islands, or for payment of duties and taxes in Solomon Islands, where applicable.

While duty would not be payable on boxes sourced from Fiji as they enter duty free under the MSG Agreement, there is a requirement to purchase them in minimum volumes of 1,000 or more. This would be a serious challenge for Solomon Island exporters. Punjas in Fiji, the owners of Combined Manufacturing from which the boxes were purchased, have advised that they would be willing to supply a minimum run of boxes and that users would only be charged when they uplift boxes from the Punjas warehouse in Honiara. Punjas also stated that they would be willing to ship the boxes for free to Solomon Islands, using the space in the containers for their monthly shipment of manufactured groceries and dry goods. However, both of these offers – no minimum purchase volume, and free shipment – have not been tested commercially.

As will be noted in the section dealing with quarantine viability, the costs associated with quarantine inspection and fumigation, customs clearance, and freight handling fees were never tested during the three shipments. An estimated total cost of A\$400–450 per shipment has been made for the purposes of this analysis, but again it has not been possible to test this commercially.

3.2 Technical Viability

Vandas are extremely sensitive to adverse temperatures during transport and storage. Unlike many flowers, the sensitivity is to low, not high temperatures. The wholesaler initially recommended that the flowers be stored at not less than 14°C. This supported comments made by Mrs Jan Hintze of Jungle Plant and Flower Service, Darwin, that tropicals should be stored above 12°C.

On the first shipment, DHL (the freight forwarder) stored the flowers over the weekend in their cold stores in Brisbane. As a result, all petals fell off the stem when the wholesaler handled the stems. On the second and third shipments, the petals were a cream colour, not white, again indicating that the flowers had been subjected to temperatures colder than 14°C. Given that the shipments were stored in ambient temperature, in this case overnight in the DHL warehouse at Eagle Farm, the likely source of the low temperature was the cargo hold of the Solomon Airline plane.

The importer working with the wholesaler indicated that failure to adjust the temperature in the plane's hold is a common fault associated with the importation of tropical flowers. Coincidentally, on the day the third shipment arrived at the wholesalers, another box of imported cut flowers was also damaged and written off due to temperature damage which was assumed to have occurred in the plane's hold.

Subsequent discussions with Solomon Airlines revealed that the hold temperature is usually around 6°C. Higher temperatures, up to 25°C, can be requested for the transport of live animals and fish, live coral, and biological products. The airline indicated its willingness to increase the hold's temperature on request.

For any further shipments, it is suggested that a data logger be used to monitor the temperature on an hourly basis from when the flowers leave Solomon Islands to when they arrive at the wholesaler in Brisbane.

3.3 Quarantine Viability

Flowers from orchid species and leaves from croton species are, according to the Australian Quarantine Inspection Service (AQIS) ICON import conditions database, considered as permitted species of non-propagatable cut flowers and foliage and permitted imports subject to the following summarised conditions:

Personal consignments

- 100% inspection by AQIS upon arrival to ensure freedom from insects and other items of quarantine concern.
- If live insects are detected, then the consignment is to be subjected to methyl bromide fumigation at an AQIS-approved treatment provider.

Commercial consignments

- An import permit is not required.
- A Quarantine Entry must be lodged.
- Consignments are to be accompanied by an official phytosanitary certificate.
- Consignments are to be inspected upon arrival by AQIS at an AQIS-approved facility to ensure freedom from insects and other items of quarantine concern.
- Consignments that come from a country that does not have an AQIS-approved treatment scheme or export pathway in place (currently only Malaysia and Singapore have such approval) are to be subjected to methyl bromide fumigation at an AQIS-approved treatment facility.

For all three trial shipments, DHL was the freight agent used. Consignments were being exported on a “commercial” basis and not as personal consignments. All the boxes and the documents submitted to DHL in Honiara for export were marked “cut flowers” with species level identification, and DHL advised of the need to lodge a Quarantine Entry. However, for each of the three consignments it is not clear whether they were subject to complete AQIS inspection and it appears unlikely that they were fumigated. No AQIS inspection or fumigation charges were presented by DHL for any of the consignments.

Subsequent to conduct of the trials, the expected standards for commercial consignments (and associated costs for inspection and treatment) have been clarified with AQIS in Brisbane and it has been confirmed that inspection and fumigation are considered mandatory. An estimate of likely costs is approximately A\$400–450, broken down as follows:

Cost estimates provided by AQIS for a small commercial consignment (e.g. 0.2 cubic metres) imported via a freight agent such as DHL were:

- Upgrade from Self Assessed Cargo to a Formal Entry into the AQIS Import Management System (Documentation fee A\$40 / Self Assessed Cargo upgrade A\$25).
- Possible verification of packaging goods prior to movement (pending on location, manned or unmanned by Department of Agriculture, Fisheries and Forestry (DAFF), A\$40–\$90).
- Inspection by AQIS (approximately 1 hour) A\$160.

- Mandatory fumigation (no charge by DAFF, costs arranged with treatment facility) charged by service provider.

It was noted by AQIS that additional handling charges could also be applied by Customs.

Cost estimates for fumigation of a small commercial consignment by the approved fumigation service provider Rentokil in Brisbane were:

- Provision of facilities for AQIS inspection (if needed to be conducted at Rentokil premises): A\$65 plus GST.
- Methyl bromide fumigation: A\$140 plus GST.

The apparent difference between the expected standards and how the trial consignments were actually handled upon import by DHL and AQIS raised several issues when considering the Quarantine viability of the proposed trade.

- It is unknown what impact the fumigation treatment will have on the presentation of the Vanda petals (i.e. whether it will affect the desired clean white colour).
- It is unknown what impact the fumigation will have on the shelf-life of the flowers.
- Fumigation may affect the issue of timing of delivery to the wholesaler. That is, the flowers have to be fumigated at an approved facility and then allowed to vent for the prescribed period. This may mean that a courier cannot pick them up for delivery to Rocklea before the wholesalers close for the day. In turn, this raises the problem of benign overnight storage. Without being subjected to fumigation, this process was unable to be tested.
- As the consignments were not fumigated as expected, it is difficult to confirm all the relevant costs into the commercial viability calculations.

Regardless of the handling of the trial shipments, it is clear that the costs of AQIS inspection and treatment will be prohibitive for any small consignments.

4 Conclusions and Recommendations

Based on the experience gained from the three trial shipments, exporting of Vandas, Spiders, and crotons from Solomon Islands to Australia is not financially viable at this point in time.

In addition, the technical viability of exporting Vandas is still to be ascertained. Increasing the temperature in the aircraft hold has yet to be tested. Even if the airline were to agree to increase the temperature – discussions to date have indicated the airline's willingness to cooperate – the experience of importers of tropical flowers to Australia has been that every now and again even experienced airlines can make a mistake and fail to maintain the required temperature. Such an accidental mistake could cause a significant loss of over SBD50,000 per shipment to the exporter. There is also the issue of the competing temperatures in the hold. Basically, the airline would have to guarantee that all Tuesday flights to Australia do not carry cargo that has temperature requirements lower than what flowers require.

Finally, quarantine viability is yet to be completely proven as a number of issues remain unclear:

- Definitive costs for inspection and treatment (details on expected costs are available from AQIS and treatment providers such as Rentokill, but these were not confirmed as part of the trials due to the differences in expected handling upon arrival in Australia).
- Reaction by the Vandas to the fumigation treatment, and effect on shelf-life.
- Timing of transporting product from Eagle Farm out to the Rocklea Markets.

Given that commercial exports of small consignments are clearly not commercially viable, it is recommended that no further action be taken at this stage to develop exports of cut flower orchids from Solomon Islands to Australia.

Despite this result, there have been a number of positive outcomes from the activity:

- One of the objectives was to develop the capacity of producers and exporters to sustain a commercial operation. This has certainly been the case both at industry level and at the individual level. Through this activity and the affiliated ACIAR-funded activity, seven flower producers have been able to examine aspects of the commercial flower industry in Australia. This has resulted in a heightened awareness of the market requirements for presentation, and allowed them to examine potential export opportunities and quarantine considerations and the reality of the costs and logistics of exporting. As a result, they have had an active involvement in examining ways in which they can reduce costs. Prime among these was their appreciation of the need to sell to the exporter at a wholesale rather than retail price. As a result, producers have now developed an ask-and-offer table when dealing with buyers. The table hinges around options of transport, cleaning, and packaging.
- Around 100 producers have benefitted from training in packaging and product presentation. As a direct result, we are now starting to see improvements in the presentation of flowers at the Honiara Central Markets – some bunches are now even being presented in sleeves brought into Solomon Islands by returning Solomon Islanders.
- The industry as a whole is now far more aware of the differentiation between wholesaler and retailer. In light of this, there have already been discussions to see if a weekday wholesale market can be established in Honiara.
- Producers are now also more aware of the shelf-life issue. While it is not in their commercial interest to produce a product that has a strong shelf-life (as over time this will result in lower total

sales), they are aware of the need to produce a flower that has at least six days shelf-life – that is, from one Saturday to the next. Thus they have become more conscious of the need to pick Vandas with at least two buds.

- Solomon Islands Quarantine Service staff have now ‘walked the value chain’ and seen the reality of the Australian market, as well as worked with the Honiara producers and the exporter on practical issues of getting a new export pathway established. Should the ACIAR project proceed with the importation of improved genetic material, there is a keener appreciation of what is involved and an improved ability to ensure that what proceeds is in accordance with the best interests of the industry.
- The exporter involved has acquired a suite of new skills through the Activity. These include preparation of cost analyses, documentation and procedures for exporting, and development of an appropriate business structure. A key new skill has been dealing with and coordinating products and actors across the whole value chain.
- The industry has built up a list of contacts in Australia that could be called upon to assist it if it were to re-examine in the future the viability of exporting flowers and foliage to Australia (Appendix D). It is noted that some of these contacts, especially the floral input suppliers, can assist Solomon Islands with the development of their domestic market.
- Finally, the information and experience obtained through this Activity in regards to market contacts, potential importers, freight considerations, import procedures and quarantine requirements will be of considerable use to any other PHAMA country that wishes to scope the commercial viability of cutflower exports.

5 Limitations

URS Corporation Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of AusAID and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Contract dated 20 January 2011.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared between January and June 2012 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Appendix A

Appendix A Activity Terms of Reference

TITLE: Trial shipments of cut flowers and foliage to Australia

ACTIVITY CODE: SOLS08

CONSULTANT NAME AND POSITION: Grant Vinning, Value Chain Development Specialist

BACKGROUND:

Solomon Islands has a diverse range of tropical cut flowers, orchids and foliage. Considerable work has been done by the AusAID-funded Agricultural Livelihoods Program in recent years to develop women's groups to supply cut flowers and foliage to the local market. A logical next step is to begin to develop an export trade.

A scoping study was completed in late 2011 to assess the potential for developing cut flower and foliage exports to Australia (PHAMA Activity SOLS04; Technical Report 16). This study, which reviewed supply conditions in Solomon Islands as well as market conditions in Australia, concluded that there is sufficient potential, particularly for orchids (especially Vandas and Spiders) and various forms of foliage (especially Crotons), to warrant further support for trial shipments to test the export pathway and develop the skills and confidence required for Solomon Island producers and exporters to initiate a regular trade. The report also recommended that further work be undertaken by PHAMA to develop/clarify Australian import protocols relating to the import of heliconias and gingers (especially the Double Makira and White Jungle King gingers) to Australia.

The scope of support provided by PHAMA under this activity will be focussed on post-production handling and marketing activities (field heat reduction, cool storage, development and provision of packaging, development of packing and handling techniques, transport and marketing), with emphasis on developing capacity of producers and exporters to sustain a commercial operation. Support to growers for necessary improvements in production activities will be provided under a separate ACIAR-funded project (HORT/2011/065) that has been purpose-designed to complement and be fully coordinated with the PHAMA activity. The two projects will be managed by the same short-term adviser with an appropriate split of funding between AusAID and ACIAR.

SCOPE OF WORK:

Key tasks under the PHAMA-funded elements of the activity include:

- (i) Provide exporters with analysis of prices and costs of exporting Vandas, Spiders, and crotons to Australia.
- (ii) Facilitate the development and supply of appropriately sized export boxes and packaging material.
- (iii) Facilitate the establishment of appropriate post-harvest preservation techniques and capacity, including provision of a temporary cool storage facility for export assembly and inspection.
- (iv) Initiate the development of an appropriate business structure and business skills to manage floriculture exports.
- (v) Liaise with selected shippers, importers and AQIS to establish arrangements for an initial trial shipment and up to five subsequent commercial shipments of selected floricultural products into Australia.
- (vi) Liaise with growers and exporter/s to coordinate production, processing, packaging, and shipment.

Appendix A

- (vii) Work with Ministry of Agriculture and Livestock (MAL) (i.e. Solomon Islands Quarantine, Research and Development, and Extension), growers and exporters to ensure that the consignments comply with Australian quarantine standards.
- (viii) Monitor the movement of the shipments through the export pathway, identifying issues and solutions.
- (ix) Coordinate closely with the related ACIAR project to ensure that necessary production-improvement activities are fully coordinated with export development activities.
- (x) Provide a brief report to the Solomon Islands Market Access Working Group (MAWG) outlining results achieved following the initial trial shipment, and again on completion of the commercial shipments.
- (xi) Addressing the above will involve work in both Solomon Islands (with growers, exporters and Solomon Islands Quarantine) and Australia monitoring product out-turn, handling, quarantine issues and market reaction.
- (xii) Note that work on clarifying Australian import protocols for heliconias and ginger will be separately coordinated by the Program Management Office.

DELIVERABLES:

- (i) Initial trial shipment to selected Australian markets.
- (ii) Up to five commercial shipments to selected Australian markets.
- (iii) Development of an appropriate business structure and skills to manage floricultural exports.
- (iv) Two reports to the Solomon Islands MAWG outlining results achieved (following the initial trial shipment, and again following completion of the commercial shipments).

CONSULTATION WITH:

- (i) Potential growers, exporters and other value chain participants in Solomon Islands.
- (ii) Potential buyers/importers in Australia.
- (iii) ACIAR, and in particular Project HORT/2011/065.
- (iv) MAL (Quarantine, Research and Development, and Extension).
- (v) AQIS.
- (vi) PHAMA Quarantine and Biosecurity Specialist concerning possible quarantine issues.
- (vii) Pacific Islands Trade and Investment Commission (Sydney).
- (viii) Solomon Islands MAWG members.

OTHER RESOURCES (INDICATIVE)

Item	Cost (A\$)
Purchase of initial supplies of boxes and packaging materials	2,000
Purchase of miscellaneous equipment for field heat removal	1,000
Hire of refurbished reefer for 5 months	6,500
Development of an appropriate business structure (local Technical Assistance (TA) for 2 weeks)	1,000
Business skills training (local TA for up to 1 month)	2,000
Export consignment costs (six shipments at \$1,000 each, including purchase of product, freight, and certification)	6,000
Travel and Per Diems for exporter and local facilitator to accompany the first two consignments (four trips at \$2,500 each)	10,000
Local coordinator/facilitator (up to 6 weeks FTE)	1,500

Appendix A

Item	Cost (A\$)
Travel to Australia for 1 week for Solomon Islands Quarantine Officer to liaise directly with AQIS officials and Australia industry representatives re: import requirements and Australian handling procedures	3,000
TOTAL	33,000

Note that all costs associated with the initial consignments will be financed directly by PHAMA. Commercial returns from these consignments will be retained as seed capital by the business organisation established to facilitate future exports.

DURATION AND TIMING:

Work is scheduled to take place over the period mid-February to June, involving up to 30 days total input from the Value Chain Development Specialist.

Activity to be completed and reported by end June 2012.

TRAVEL:

Suva–Honiara–Suva (Grant Vinning, up to 2 trips)

Suva–Sydney/Melbourne–Suva (Grant Vinning, 1 trip)

Travel to Australia by Solomon Islands facilitator and exporter to Australia to accompany first two consignments, as detailed in above table.

REPORTING TO:

Richard Holloway (Team Leader)

Appendix B

Appendix B Base Financial Analysis for the Three Trial Shipments

April 2012

Exporter: Annie Maedia
 Number of shipments: 3

Selected Buyer (Australia): Real Time Flowers, Rocklea, Brisbane
 Exchange Rate: SBD7.00 for every A\$1.00

		A\$ – 3 shipments	SBD – 3 shipments	Vandas			Spiders			Crotons			
				A\$	SBD	%	A\$	SBD	%	A\$	SBD	%	
		Total cut flowers shipped			298			699			309		
1. SALES													
1.1	Offered price per stem			\$1.40	\$9.80	100	\$1.15	\$8.05	100	\$0.45	\$3.15	100	
	Commission – 15% of selling price			\$0.21	\$1.47	15	\$0.17	\$1.21	15	\$0.07	\$0.47	15	
	Final price per stem			\$1.19	\$8.33	85	\$0.98	\$6.84	85	\$0.38	\$2.68	85	
	Total sales (final price x qty)	\$1,156.09	\$8,092.60	\$354.62	\$2,482.34		\$683.27	\$4,782.91		\$118.19	\$827.35		
2. DIRECT COSTS													
2.1	Cut flowers												
	Cost charged/stem			\$0.43	\$3.00	36	\$0.43	\$3.00	44	\$0.14	\$1.00	37	
	Total (stem cost x qty)	471.43	\$3,300.00	\$127.71	\$894		\$299.57	\$2,097		\$44.14	\$309		
	Gross Margins	684.66	\$4,792.60	\$0.76	\$5.33	64	\$0.55	\$3.84	56	\$0.24	\$1.68	63	
3. OTHER INPUT COSTS													
3.1	Input Cost 1 – Domestic												
	Transport	300	\$2,100		\$1.61			\$1.61			\$1.61		
	Labour	600.00	\$4,200		\$3.22			\$3.22			\$3.22		
	Storage (air-conditioned room)	157.14	\$1,100		\$0.84			\$0.84			\$0.84		
	Packing Venue	142.86	\$1,000		\$0.77			\$0.77			\$0.77		

Appendix B

		A\$ – 3 shipments	SBD – 3 shipments	Vandas			Spiders			Crotons		
				A\$	SBD	%	A\$	SBD	%	A\$	SBD	%
	Total 1:	1,200.00	\$8,400	0.92	\$6.43		0.92	\$6.43		0.9	\$6.43	
3.2	Input Costs 2 – Imports											
	Boxes 800x325x180 (# used)				3			5			2	
	Unit costs (@SBD7.04/box)	10.06	\$70.40		\$0.05			\$0.05			\$0.05	
	Sleeves (# used)				58			131			31	
	Unit costs (@SBD0.35/sleeve)	11.00	\$77.00		\$0.06			\$0.06			\$0.06	
	Gels (# used)				29			65.5			15.5	
	Unit costs (@SBD1.05)	16.50	\$115.50		\$0.09			\$0.09			\$0.09	
	Bubble wrappings (#)				10m			20m				
	Unit costs	25.71	\$180.00		\$0.14			\$0.14			\$0.14	
	Rubber band (#)				58			131			31	
	Unit costs (@SBD0.07)	2.20	\$15.40		\$0.01			\$0.01			\$0.01	
	Vial (#)				298			699			309	
	Unit costs (@SBD0.70)	130.60	\$914.20		\$0.70			\$0.70			\$0.70	
	Total 2:	196.07	\$1,372.50		\$1.05			\$1.05			\$1.05	
					\$313.17			\$734.59			\$324.73	
3.3	Freights & Documentations											
	DHL (# of boxes)				3			5			2	
	Total kg (averaged)	38.55	38.550		11.565			19.275			7.710	
	Total cuttings				298			699			309	
	Freight cost (average)	808.57	\$5,660		\$1,698			\$2,830			\$1,132	
	Freight cost/Unit				\$4.33			\$4.33			\$4.33	
	Solomon Islands Quarantine Phyto Certificate (@SBD150)	21.43	\$150.00		\$0.11			\$0.11			\$0.11	

Appendix B

		A\$ – 3 shipments	SBD – 3 shipments	Vandas			Spiders			Crotons		
				A\$	SBD	%	A\$	SBD	%	A\$	SBD	%
	Customs Clearance (FormA) @ SBD10	1.43	\$10.00		\$0.01			\$0.00			\$0.01	
	Inspection and Fumigation Fees (A\$400/SBD2,800)	400	\$2,800.00		\$2.14			\$2.14			\$2.14	
	Total 3:	1,231.43	\$8,620.00		\$6.60			\$6.60			\$6.60	
					\$1,967.94			\$4,611.60			\$2,040.46	
3.4	Total Input Costs (A, B & C)											
	Total 1	\$1,200	\$8,400		\$6.43			\$6.43			\$6.43	
	Total 2	\$196.07	\$1,372.50		\$1.05			\$1.05			\$1.05	
	Total 3	\$1,231.43	\$8,620.00		\$6.60			\$6.60			\$6.60	
	Total	\$2,628	\$18,393		\$14.09			\$14.08			\$14.09	
4. PROFITABILITY												
4.1	Gross Margin	\$685	\$4,793		\$5.33			\$3.84			\$1.68	
	Less											
4.2	Input Costs (A, B, C)	\$2,628	\$18,393		\$14.09			\$14.08			\$14.09	
	Profit/Loss	\$(1,942.84)	\$(13,599.91)		\$(8.76)			\$(10.24)			\$(12.41)	

Appendix C

Appendix C Financial Analysis – Reduced Cost Scenario

Based on INCREASED VOLUME and COST REDUCTIONS – decided upon by the exporter and her group.

Exchange Rate: SBD7 for every A\$1

										Notes
Increase volume of cut flowers to:				500	500					Combined 1,000 cut flowers of Vandas and Spiders only. Crotons dropped
				Vandas			Spiders			
1	Sales	A\$ Total	SBD Total	A\$	SBD	%	A\$	SBD	%	
1.1	Final price per stem			\$1.19	\$8.33	100	\$0.98	\$6.86	100	Net price after 15% commission
1.2	Total sales (price x qty)	\$1,085.00	\$7,595.00	\$595.00	\$4,165.00		\$490.00	\$3,430.00		
	Less:									
1.3	Cost of 1000 cut flowers @\$1.50/stem	\$214.29	\$1,500.00	\$107.14	\$750.00		\$107.14	\$750.00		
				\$0.21	\$1.50		\$0.21	\$1.50		Price per stem reduced from SBD3 to SBD1.50
2	Gross Margins (A)									
2.1	Gross margin per shipment (A1)	\$870.71	\$6,095.00	\$487.86	\$3,415.00		\$382.86	\$2,680.00		
2.2	Gross margin per stem (A2)			\$0.98	\$6.83		\$0.77	\$5.36		
3	Input Costs/Stem									
3.1	Input Costs 1 (Domestic)									
	Transport (20% of the total \$2,100)	\$60.00	\$420	\$0.06	\$0.42		\$0.06	\$0.42		Flowers will be delivered to Annie, saving her 80% of total transport costs
	Labour (2 people x \$300 each)	\$85.71	\$600	\$0.09	\$0.60		\$0.09	\$0.60		Number of labourers reduced from 6 to 2 people; however, rate per person remained.
	Storage (300x1))	\$42.86	\$300	\$0.04	\$0.30		\$0.04	\$0.30		Negotiated price for storage room

Appendix C

	Packing Venue (own space)	\$-	\$-	\$-	\$-		\$-	\$-		Annie using her place for packing
	Total 3.1:	\$188.57	\$1,320	\$0.19	\$1.32		\$0.19	\$1.32		
3.2	Input Costs 2 (Imports)									
	Boxes 800x325x180 (# used)		8		4			4		Planned to export once every 4 weeks
	Unit costs (@SBD7.04/box)	\$8.05	\$56.32		\$0.056			\$0.056		
	Sleeves (# used)		200		100			100		6 cuttings per sleeve
	Unit costs (@SBD0.35/sleeve)	\$10.00	\$70.00		\$0.07			\$0.07		
	Gels (# used)		0		0			0		Replaced with clean rainwater
	Bubble wrappings (#)		0							Replaced with clean papers
	Rubber band (#)				100			100		
	Unit costs (@SBD0.07)	\$2.00	\$14.00		\$0.01			\$0.01		
	Vial (#)		1000		500			500		
	Unit costs (@SBD0.70)	\$100.00	\$700.00		\$0.70			\$0.70		
	Total 3.2:	\$120.05	\$840.32		\$0.84			\$0.84		
3.3	Freights & Documentations 3									
	# of boxes		8		4			4		125 sleeves per box
	Total estimated weight		30.840		15.420			15.420		
	Total cuttings				500			500		
	Air freight – Solomon Airlines @SBD700/0–20kg + A\$70 (\$560) to deliver to buyer	\$180.00	\$1,260		\$630			\$630		Using freight costs quoted by Solomon Airlines but is not for door to door delivery as provided by DHL. A\$70.00 was factored in for delivery to buyer's door. Cost is lower than that of DHL.
	Freight cost/unit				\$1.26			\$1.26		
	Solomon Islands Quarantine Phyto Certificate (@SBD150)	\$21.43	\$150.00		\$0.15			\$0.15		

Appendix C

	Customs Clearance (FormA) @ SBD10	\$1.43	\$10.00		\$0.01		\$0.01		
	AQIS Inspection & Rent-o-Kil fees – A\$400 = SBD 2,800)	\$400.00	\$2,800.00		\$2.80		\$2.80		
	Total 3.3:	\$602.86	\$4,220.00		\$4.22		\$4.22		
					\$2,110.00		\$2,110.00		
3.4	Total of A, B & C								
	Total 3.1	\$188.57	\$1,320		\$1.32		\$1.32		
	Total 3.2	\$120.05	\$840.32		\$0.84		\$0.84		
	Total 3.3	\$602.86	\$4,220.00		\$4.22		\$4.22		
	Total Inputs & Imports/stem (B)	\$911.47	\$6,380.32		\$6.38		\$6.38		
					\$3,190.16		\$3,190.16		
4	Profitability								
4.1	Projected profit/stem (A2-B)				\$0.45		\$(1.02)		
4.2	Projected profit/shipment (A1-B)	\$(40.76)	\$(285.32)						

Appendix D

Appendix D Organisations Consulted in Brisbane

Organisation
<u>Importers</u> Orchids Today, Rocklea Christensen's Flower Auction, Slacks Creek
<u>Wholesalers</u> Tesselaar Flowers, Cooparoo Lynch Flower Market, Rocklea Brisbane Market Flowers, Rocklea FlowerLovers, Rocklea Realtime Flowers, Rocklea Christensen's Flower Auction, Slacks Creek
<u>Retailers</u> John Jones Florist, Brisbane CBD Flowers by Jane, Brisbane CBD Daisy's of Toowong
<u>Floral Equipment Suppliers</u> Swann Agency, Cooparoo A-pack, Salisbury Centenary Gardenway, 17 Miles Rocks Road



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