AVRDC
The World Vegetable Center

Baseline

Baseline Report

Vegetable production in Guadalcanal and Malaita, Solomon Islands

December 2008

AVRDC – The World Vegetable Center is the leading international nonprofit research organization committed to alleviating poverty and malnutrition and ensuring food security, health, and stronger economies through vegetable research, development, and training.

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Acknowledgements

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Source: Microsoft Encarta, *Times Atlas of the World*

Map of Solomon Islands

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1 Introduction

1.1 Survey methodology

Baseline surveys are used to collect reliable data on current social and economic conditions of targeted populations. The results help measure change in social and economic variables during a project's term and after it is completed.

A stratified random sample approach was used for this survey. Sample villages were selected at random from a list of villages from project regions in Malaita and Guadalcanal provinces. Survey sites were based on areas in which the project will conduct most of its activities. From the selected villages the team randomly selected households to be surveyed.

A structured questionnaire divided into the following sections was used to collect data: a) tracking information, b) socio-demographic information, c) farm information, d) production information, e) market information, and f) training and extension needs. Production information was collected for up to three of the most important vegetable crops on each farm.

Figure 1. Enumerators during training session

A training session and an in-field pretest of the survey questionnaire were conducted in Honiara, Guadalcanal from 24–26 November 2008. The program included an indoor training session on the first day conducted by Dr. Katinka Weinberger, head of the AVRDC Socioeconomics Group, who talked about the survey process and discussed the questionnaire. Pretesting of the questionnaire in the field was done on the second day with the four enumerators (Connie Siliota, Kevin Maekalia, Hampton Saua, and Emmanuel Momia), Dr. Katinka Weinberger, Dr. Ravindra C. Joshi, Site Coordinator of the AVRDC/Solomon Islands Project, and Mr. John Bosco

Sulifoa, Ministry of Agriculture and Livestock (MAL) representative. The pretest was conducted in Tumagulu, Mbarande in east Guadalcanal and Burns Creek in Honiara. The questionnaire was reviewed and finalized on the third day.

1.2 Survey sites

The survey was conducted in two provinces: Malaita and Guadalcanal. In total, 190 households were surveyed.

In Guadalcanal, the survey was conducted in the following communities: Sun Valley settlement, east of Honiara; Titinge village, west of Honiara; Vatupilei, Duidui, Horobau, Tamboko, and Borosugu in west Guadalcanal; and Komporo, Vutu, Old Selwyn, Sali, and Ghavaga in east Guadalcanal (Annex 1). The villages were notified prior to the interviews.

In Malaita, the survey was concentrated in West and Central Kwara'ae districts. The areas in which the survey was conducted include Dala and Koa villages, north from Auki; Gwaunafiu, Aisiko, Aisaliga, Ngadefiu, Urabala, Busininiu, and Dukwasi in central Malaita; and Mage, Oneoneabu and Maoro, located south of Auki (Annex 2).

The survey team consisted of four enumerators and was assisted by Malaita Agriculture research staff. The team went to each village to interview household representatives that had been pre-selected at random from the village list and notified prior the interviews. Where pre-selected households were not available for interviews, a replacement was chosen.

1.3 Limitations and problems

The purpose of this survey was to establish baseline data against which the achievements of the project could be measured in several years in the area under vegetable production, yield levels, and production practices changed. During the pretest it became obvious that reliable area data would be difficult to collect. Farmers were vague about the size of the area they cultivated, due both to characteristics of land ownership and the mixed cropping systems in the Solomons. Thus, it was decided that the questionnaire would be adapted to collect proportional, rather than absolute area data. On a sheet of paper scaled to 100%, farmers were asked to draw the area they allocated to different crops. The same method was used to show enumerators how to indicate postharvest yield. Farmers generally also found it difficult to estimate costs and incomes related to vegetable production. Thus, for some of the variables, information is not complete.

2 Farmer Characteristics

2.1 Sample size

In total, 190 households were surveyed in Guadalcanal and Malaita (Table 1). Of these, 5 percent (9 farmers) did not grow any vegetables at all, while 7 farmers grew vegetables in such small amounts that detailed information on their vegetable production patterns was not obtained. In our random sample, 92 percent of respondents grew vegetables to contribute to their livelihoods; complete information is available for these 174 farmers. Detailed information was obtained for up to three vegetable crops with major significance for the household, so that the complete number of observations on vegetable production practices is 465.

Table 1. Sampling distribution by type and province

	Province		Total
	Guadalcanal	**Malaita**	
Total farm households	95	95	190
Non-vegetable growers	8	1	9
Subsistence growers	5	2	7
Vegetable growers with complete information	82	92	174
Number of crop observations	207	258	465

2.2 Socio-demographics

About 57 percent of the respondents are male and 43 percent are female, with a lower share of female respondents in Malaita. About 55 percent of those interviewed had primary education, 22 percent reached high school, 1.6 percent college, 1.6 percent vocational, and 0.5 percent others (Table 2). About one-fifth never had formal education, with more uneducated respondents coming from Guadalcanal. In general, Malaita has a literacy rate of 61 percent, which is significantly lower than Guadalcanal with 73 percent (SIG, 1999).

Table 2. Education level of surveyed vegetable farmers by provinces

Education level	Guadalcanal (%)	Malaita (%)	Total (%)
No school	22	17	19
Primary	52	59	55
High school	20	23	22
College/university	2	1.1	1.6
Vocational	3	0.0	1.6
Other	1.1	0.0	0.5
Total	100	100	100

N=190

The average number of persons per household is 6.1, which reflects the national average of 6.3. In Malaita, the average is 6.6, while Guadalcanal has an average household size of 5.8 (SIG, 1999). The average number of children 10 years and below is 1.8.

In terms of asset ownership, it is a general aspiration among Solomon Islanders to own a permanent house. Table 3 shows that most of the farmers own at least an iron-roofed house. A small number of farmers also own other assets such as electricity generators, solar power, water tanks, and CD players. Households in Guadalcanal are slightly better equipped with those assets than households in Malaita.

Table 3. Asset ownership by province

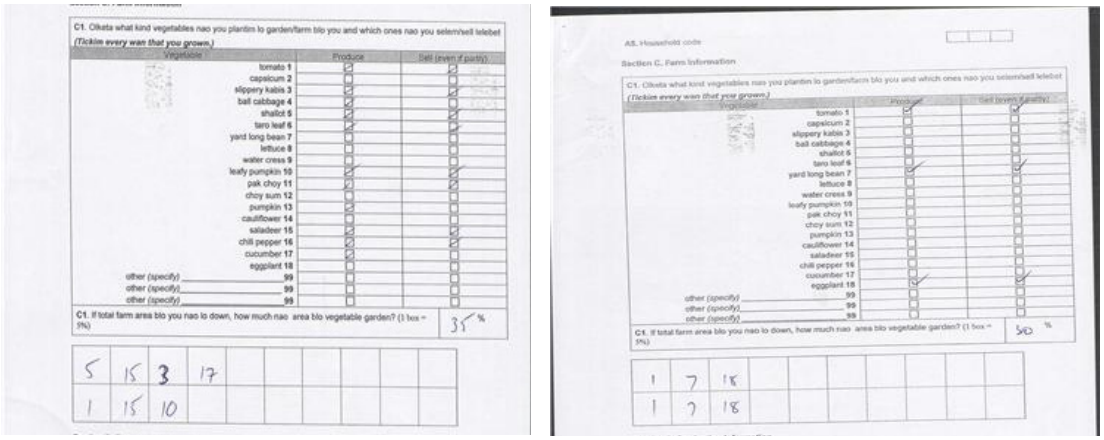
Asset ownership	Guadalcanal (%)	Malaita (%)	Total (%)
Iron roof house	54	59	56
CD player	26	11	18
Water tank	18	8	13
Electric power generator	11	6	8
Solar power	7	6	7
TV	6	2	4
Pick-up truck	4	1	3
Tractor	1	0	1

N=190

2.3 Significance of vegetable production

The average area of vegetable gardens makes up approximately one quarter of all crop area in both provinces. This reflects the fact that although vegetable production is significant for household consumption and income generation, it is not a dominant activity. Mixed cropping is the most common method of farming for both Guadalcanal and Malaita; it was

therefore difficult to estimate the vegetable area. Figure 2 shows the matrix used during the surveys to estimate vegetable plots. Note that each box represents 5 percent.



Malaita (35%) Guadalcanal (30%)

Figure 2. Typical plot allocation of vegetables

Figure 3. Vegetable garden plot and intercropping

Root crops such as sweet potato, cassava, and taro usually occupy large portions of garden area. Importantly, larger areas are often occupied by high-value, low-management crops. For example, in Guadalcanal plains, high-value crops such as watermelon and sweet potato have larger areas compared with vegetable areas.

3 Vegetable Production

Vegetables are grown all year round, although cultivation is limited due to the prevalence of pests and diseases in the drier season, and fungal infection from prolonged rains followed by hot sun (PRA Report, 2008). The general weather pattern has a direct bearing on vegetable cultivation for Guadalcanal and Malaita. The islands' ocean-equatorial climate is extremely humid throughout the year. The mean annual temperature is 27°C. June through August is the cooler period. Though seasons are not pronounced and extreme weather is rare, the northwesterly winds of November through April bring more frequent rainfall and occasional cyclones. The annual rainfall is about 305 centimeters. The northern coastal region of Guadalcanal from west to about as far east as Tetere experiences more rain from November to April and can have a distinct dry season from June to October. The southern part of the islands receives rain almost all year round, with the wettest time occurring between May to October (Annex 3). In Malaita, the north to northeast (north of Auki) receives more rain from November to April, while the rest of the island receives more rain from October to May from the southeast trade winds. For Malaita there is no distinct dry season; it rains all year round, although there can be some dry weeks between May and October (Annex 4).

3.1 Production patterns

The most important vegetables grown by most farmers for both Guadalcanal and Malaita are tomato, yard-long bean, eggplant, shallot, and slippery cabbage (*Abelmoschus manihot*). Other important vegetables grown are Chinese cabbage, capsicum, cucumber, and pak choi (Table 4). Farmers commonly reproduce seeds of tomato, yard-long bean, slippery cabbage, and eggplant themselves or regenerate through stalking, while hybrid vegetables such as Chinese cabbage, pak choi, and ball cabbage are purchased mainly from the market or in stores. About 15 percent of farmers changed to different hybrid varieties during the last production season.

Table 4. Main vegetables grown for home consumption and marketing

Vegetable	Guadalcanal	Malaita
For home consumption	Slippery cabbage, yard-long bean, tomato, eggplant, shallot, capsicum, chili pepper	Shallot, tomato, yard-long bean, slippery cabbage, eggplant, taro leaf, Chinese cabbage, cucumber
For income	Tomato, yard-long bean, slippery cabbage, eggplant, pak choi, cucumber, capsicum	Tomato, shallot, Chinese cabbage, eggplant, capsicum, pak choi, yard-long bean, cucumber

N=174

About 36 percent of farmers produce their own seed and 42 percent purchase seed from the market or stores (Table 5). Farmers in both Guadalcanal and Malaita obtain seed in this way. A significant number of farmers from both provinces get their seeds from other farmers.

Table 5. Seed source by province

Seed Source	Guadalcanal (%)	Malaita (%)	Total (%)
Produce own seed	33	38	36
Purchase in market/store	44	41	42
From extension agent	0	0	0
From AVRDC	0	0	0
From ROC farm	2	1	1
From other farmers	20	20	20
Other source	2	0	1
Total	100	100	100

N=462

3.2 Fertilizer application

About 90 percent of the surveyed farmers from both provinces do not apply fertilizer (purchased, manure, or compost) to their crops (Table 6). More farmers use organic fertilizers than inorganic fertilizers. A major reason for not using fertilizers was unavailability. However, many farmers also considered the use of fertilizer as unnecessary, due to high soil fertility. Lack of information and training in the use and benefits of fertilizer also contributes to the unpopularity of fertilizer. For the few farmers who did use fertilizer, fertilizer application was learned from consulting with other farmers, or from their own experience.

Table 6. Fertilizer application for major crops by province

Fertilizer use	Guadalcanal (%)	Malaita (%)	Total (%)
Organic fertilizer	4	8	6
Inorganic fertilizer	5	1	3
Organic and inorganic fertilizer	2	0	1
Don't use fertilizer	89	90	90

N=465

3.3 Pests and chemical pesticides

In general, pests and diseases are becoming a problem in both provinces. This is believed to be due largely to the existing cropping systems, such as

intercropping and or mixed cropping. Despite the pest problems, the number of farmers using chemical pesticides is low**.**

Table 7. Pesticide use (synthetic and others) in major crops by province

Pesticide use	Guadalcanal (%)	Malaita (%)	Total (%)
Synthetic pesticides	23	5	13
Other methods	8	29	20

N=465

About 87 percent of surveyed farmers do not use chemical pesticide on their crops (Table 7). There is a marked difference between Guadalcanal and Malaita, with nearly one quarter of farmers using synthetic pesticides in Guadalcanal versus 5 percent in Malaita. Because there is no input supply store in Malaita, it is more difficult for farmers there to purchase synthetic pesticides. In addition, the severity of pest problems is reported to be lower in Malaita. About 13 percent of surveyed farmers use chemical pesticides and 20 percent use other methods (Table 8). Some farmers were aware of the danger of using chemical pesticides, and suggested that consumers might not be willing to purchase their products if they used chemical pesticides. A significant number of farmers use other methods to control pests, such as handpicking, uprooting, and using mixtures of chili, wood ashes, etc. The most common pests that attack crops are worms/caterpillars, beetles, white moths/butterflies, and grasshoppers. Farmers who use synthetic pesticide usually base the application rate on their experience, or consult other farmers.

Table 8. Chemical pesticides used and their active ingredients

Chemical Pesticide	Active Ingredient	Use	% of farmers using
Orthene	Acephate	Insecticide	13.2
Target	Permethrin	Insecticide	2.3
*Icon**	Lambda cyhalothrin	Mosquito control	2.3
Carbaryl	Carbaryl	Insecticide	1.1
Garden Master	Propoxur	Insecticide – fungicide	0.6
Karate	Lambda cyhalothrin	Insecticide	0.6
DDT	*Dichloro-Diphenyl-Trichloroethane*	Mosquito control	0.6

*Not for use in vegetable production.
N=174

3.4 Irrigation

Most farmers do not irrigate their crops (Table 9). For those who do, irrigation is commonly done during crop establishment (35 percent), and lesser during crop development (22 percent) or before harvest (8 percent). More farmers in Guadalcanal irrigate than in Malaita. Highly managed crops such as ball cabbage, pak choi, and choy sum are crops that often are irrigated, especially during crop establishment and development phases. Results of the survey show that vegetable plots generally are between 20 to 500 meters from water sources. Irrigation using buckets is the most common method.

Table 9. Irrigation of major crops, by province

During…	Frequency	Guadalcanal (%)	Malaita (%)	Total (%)
Crop establishment	No irrigation	48	80	65
	Daily	47	19	32
	2-3 times per week	3	1	2
	Weekly	0	0	0
Crop development	No irrigation	67	87	78
	Daily	16	5	10
	2-3 times per week	11	6	8
	Weekly	5	2	3
Before harvest	No irrigation	89	95	93
	Daily	3	2	2
	2-3 times per week	1	2	2
	Weekly	4	1	3

N=465

3.5 Harvest

Most farmers harvest their vegetables between 3 to 10 times during a single season. Vegetables such as pak choi, Chinese cabbage, lettuce, and choy sum were harvested and sold within a short period because of their perishable nature. Tomato, eggplant, capsicum, slippery cabbage, watercress, leafy pumpkin, chili pepper, and cucumber can continue producing for up to three months in one season.

Figure 4. Single pick of shallot, Gwaunafiu Busurata

Vegetables usually are packed in basins, buckets, bags, or woven baskets. Most of the vegetables are grouped and bundled. Fruit vegetables such as tomato, capsicum, and eggplant usually are sold in groups or heaps, and cost between SI$1 to SI$3 per heap. Leafy vegetables, particularly slippery cabbage, pak choi, Chinese cabbage, choy sum, and leafy pumpkin, are bundled and sold at SI$5 per bundle. A farmer could harvest between 15 to 38 heaps per pick for fruit vegetables, and 10 to 40 bundles of leafy vegetable per pick.

Figure 5. Vegetables in heaps and bundles

The majority of vegetable produce is sold in the market (60%) and eaten at home (23%). The rest is given away as gifts (8%) or cannot be consumed

due to spoilage (9%). The share of marketed vegetables in Guadalcanal was 10 percent higher than in Malaita, which can be explained with the easier access to markets. Average postharvest loss reported was also slightly lower in Guadalcanal (Table 10).

Table 10. Postharvest distribution of major crops by province

Postharvest use	Guadalcanal (%)	Malaita (%)	Total (%)
Postharvest loss	7	10	9
Gift	7	10	8
Market	65	55	60
Home consumption	21	25	23

N=417

3.6 Training and extension needs

Approximately three-fourths of the surveyed farmers did not receive any training or advice from any outside organizations during the last production season and only about 19 percent received advice from agriculture extension agents (Table 11). Although both Malaita and Guadalcanal have rural training centers, and the Ministry of Agriculture and Livestock and NGOs operate in the provinces, most farmers did not receive any training at all. It is interesting to note that farmers in Malaita appear to be better served by extension services than farmers in Guadalcanal. In Guadalcanal, 81 percent of farmers reported not having received any advice on vegetable marketing in the preceding production period, compared with 63 percent in Malaita.

Table 11. Farmer sources of agricultural advice by province

Agricultural advice	Guadalcanal (%)	Malaita (%)	Total (%)
Extension	10	26	19
NGOs	8	2	5
Church	0	0	0
Educational institutions	0	4	2
Other	1	5	3
None of the above	81	63	71

N=162

It was apparent that the interviewed farmers are keen for any training that would improve their vegetable production skills. The following are the high-priority areas identified by farmers: pest and disease management, seed production, plant management, crop nutrition, irrigation, and marketing.

4 Marketing

Income from the sale of vegetables is important to most rural households; it comprises about 53 percent of the total household income in both provinces (Table 12).

Table 12. Share of vegetable income to total income by province

Income sources	Guadalcanal (%)	Malaita (%)	Total (%)
Income from vegetables	53	53	53
Other source	47	47	47
Total	100	100	100

N=152

4.1 Main buyers

Most farmers (75%) sell their vegetable products to consumers in the market. Others sell their vegetables to vendors at the market, or to restaurants and institutions as indicated in Table 13. In Malaita, Auki main market is the venue for the areas of Busurata, Dukwasi, Urabala, Busininiu, Mage, and Oneoneabu, while Dala and Maoro have their own district markets. These are coastal markets that service districts further from Auki.

In Guadalcanal, the Honiara main market services the Guadalcanal plains, Honiara settlements, and west Guadalcanal farmers. There are district markets that often occur fortnightly in some areas, for instance, Tetere and Ngalibiu at the GPOL station. Lengakiki market in the Lengakiki area opens daily, but only in the afternoons. The Titinge community is the main supplier of the Lengakiki market. Mamara market opens every Wednesday on the beach along the west Guadalcanal road, and services the areas of Mamara, Duidui, Horobau Ariligo, and the surrounding communities. However, most farmers go to the Honiara market.

The low involvement of middlemen and traders in produce marketing in the Solomon Islands also has been noted by others (KGA, 2005) and is explained through a variety of factors, especially 1) a perception that higher returns can be achieved by cutting out the middleman; 2) poor telecommunications; 3) lack of confidence in the marketing chain; and 4) farmers using produce trading to help subsidize trips to Honiara or to other provincial centers. However, there are adverse consequences of such a high farmer involvement in produce marketing. These include high marketing cost and decreased returns to farmers, inconsistency in supply flows, and limited market outlets.

Table 13. Main vegetable buyers by province

Main Buyers of vegetables	**Guadalcanal (%)**	**Malaita (%)**	**Total (%)**
End consumer	74	75	75
Vendor at market	12	5	9
Middlemen coming to village	0	0	0
Restaurant/hotel	2	0	1
Other	11	20	16
Total	100	100	100

N=174

4.2 Prices

Generally, prices for the same type of vegetable are similar to those achieved by other farmers (Table 14). Although there is some variation in prices, in that some farmers sell at lower or higher prices for the same type of vegetable, the majority of sellers settle at a price similar to those set by other farmers. However, the results of the survey also show a significant number of farmers (45%) sold their tomato at lower prices for fast sales in Guadalcanal, indicating competition for this crop may be particularly high. A difference between Malaita and Guadalcanal can be observed for other crops as well, although it is less pronounced than tomato. In Malaita, the market is less developed, and there is less competition.

Table 14. Comparison of prices for major crops by province

	Guadalcanal (%)			**Malaita (%)**			**Total (%)**
	Tomato	Yard-long bean	Slippery cabbage	Chinese cabbage	Tomato	Shallot	
Higher price	3	0	0	5	0	3	4
Similar price	45	64	67	63	74	60	58
Lower price	45	32	33	33	26	30	36
Don't know	6	4	0	0	0	7	3

N=399

Prices are set at the market. Distance is also a factor in price determination, because the high cost of transport is a major impediment to farmers in rural areas. Usually, all farmers agree on a fixed price and customers cannot bargain (PRA Report, 2008). Average prices are listed in Table 15.

Vegetables sold in coastal markets or by ambulant vendors in villages often are priced lower than produce sold in urban or peri-urban areas, to cater to village people who have limited cash. For instance, Dala and Maoro coastal markets in Malaita sell their vegetables at lower prices compared to Auki or Honiara main market. An example is slippery cabbage: It sells at about

SI$4 to SI$5 in Auki and Honiara markets, respectively, and SI$3 in rural areas.

Vegetable prices vary in the two provinces, with prices in Malaita relatively lower. For instance, a heap of tomato sells at SI$2.7 in Honiara, but costs only SI$1 in Auki. The same is true for other vegetables like capsicum, shallot, beans, and other leafy vegetables. The quantity of a heap or bundle also can vary. Typically, a heap of tomatoes includes 5–8 fruits and weighs between 100-200 g. A bundle of slippery cabbage consists of 4–6 stalks and weights 100-150 g. A bundle of yard-long bean could weigh 300–600 g.

Table 15. Average price for major crops by province (in SI$/heap or bundle)

Guadalcanal (SI$/heap)		**Malaita (SI$/heap)**	
Tomato	2.7	*Chinese cabbage*	5
Yard-long bean	5	*Tomato*	1
Slippery cabbage	5	*Shallot*	3

N=397

Generally, prices are higher during November and December and lower from April to June. Market price fluctuations generally reflect supply and demand. The month of December is usually the closing season for most farmers; this leads to a decline in the supply of vegetables in the markets, and therefore, higher prices.

Most of the farmers interviewed indicated their overall sales in the last production year made no change (37%) or increased slightly (35%) compared with the previous production year. In contrast, 28 percent of farmers stated that their sales decreased. Because all three groups of answers are of similar size, it is likely that the total market supply has not changed greatly over the past years.

4.3 Costs and benefits of vegetable production

About 81 percent of the farmers' expenditure comes from transport costs and purchasing seed (Table 16), with transportation being the highest cost factor. In terms of transport, farmers from Busurata, Urabala and Oneoneabu that sell at the Auki market in Malaita spent the most on transportation, as transport cost is determined by distance. Most farmers prefer to purchase the seed of high-value vegetables such as ball cabbage, pak choi, Chinese cabbage, and choy sum in the market or stores. Cost of materials, labor, and water are not major expenditures for most farmers.

Overall, both the average cost and revenue of vegetable production is higher in Guadalcanal than in Malaita. This is a reflection of Guadalcanal's higher input use, higher transport costs, and higher prices achieved in markets.

Low input use contributes to the high profitability of vegetable production. In both provinces, production cost is approximately 10–15 percent of total revenue, resulting in very high cost-benefit ratios from 8.4 in Guadalcanal and 5.1 in Malaita. This indicates vegetable production is highly profitable at the current low levels of input.

Table 16. Economics of vegetable production (in SI$)

	Guadalcanal		**Malaita**		**Total**	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Cost items						
Seed	38	68	38	51	38	60
Fertilizer	6	23	0	1	3	16
Pesticide	28	75	10	55	19	66
Materials	1	3	0	0	0	2
Water	0	0	0	0	0	0
Labor (hired)	22	75	2	9	12	54
Transport	310	240	116	158	212	224
Market fees	37	28	18	17	28	25
Other	0	0	0	0	0	0
Total cost	443	346	184	230	312	320
Revenue	4161	7850	1117	1180	2617	5759
Return to labor	3718	7669	933	1038	2305	5590
Cost-Benefit Ratio	8.4		5.1		7.4	

N=136

5 Conclusion

Vegetable production is an integral part of livelihoods in the Solomon Islands. More than 90 percent of households on Malaita and Guadalcanal engage in vegetable production, either for marketing or for home consumption. For households that raised vegetables, vegetables contributed on average more than 50 percent of total household income. Thus, income from vegetable marketing is a significant source of income, although vegetables only account for approximately one quarter of total land use.

In general, use of fertilizers and pesticides is low. Despite the high prevalence of pests and diseases, close to 87 percent of farmers do not use chemical pesticides. This is largely due to the lack of pesticides in the market. We found that input use was especially low in Malaita, where farm inputs are not readily available. A recommendation is to put together simple technology packages, which would include the correct seed varieties, a simple fertilizer regime, and disease information with a specific treatment program.

Our study indicates that vegetable marketing is little developed. Most farmers sell directly to end consumers and a few sell to vendors at the market. Farmers generally do not trust intermediaries, and believe that higher returns can be achieved by cutting out such middlemen. To increase market supplies, it will likely be necessary to increase the number of market outlets. Aggregating farm produce through collecting points could provide larger quantities of vegetables to the market, and thus stabilize produce quantity and quality.

Lack of training and support for farmers producing vegetables is an issue that clearly needs to be addressed in both provinces. Farmers identified pest and disease management, seed production, plant management, crop nutrition, irrigation, and marketing as high-priority areas of interest.

Overall, our study results indicate there is a good opportunity to raise productivity levels of farmers through simple, low cost vegetable production technologies. However, materials and inputs are not easily available to farmers in the Solomons due to the lack of input vendors. Care must be taken to ensure farmers can access the basic materials and inputs needed to employ vegetable production technologies in the Solomon Islands.

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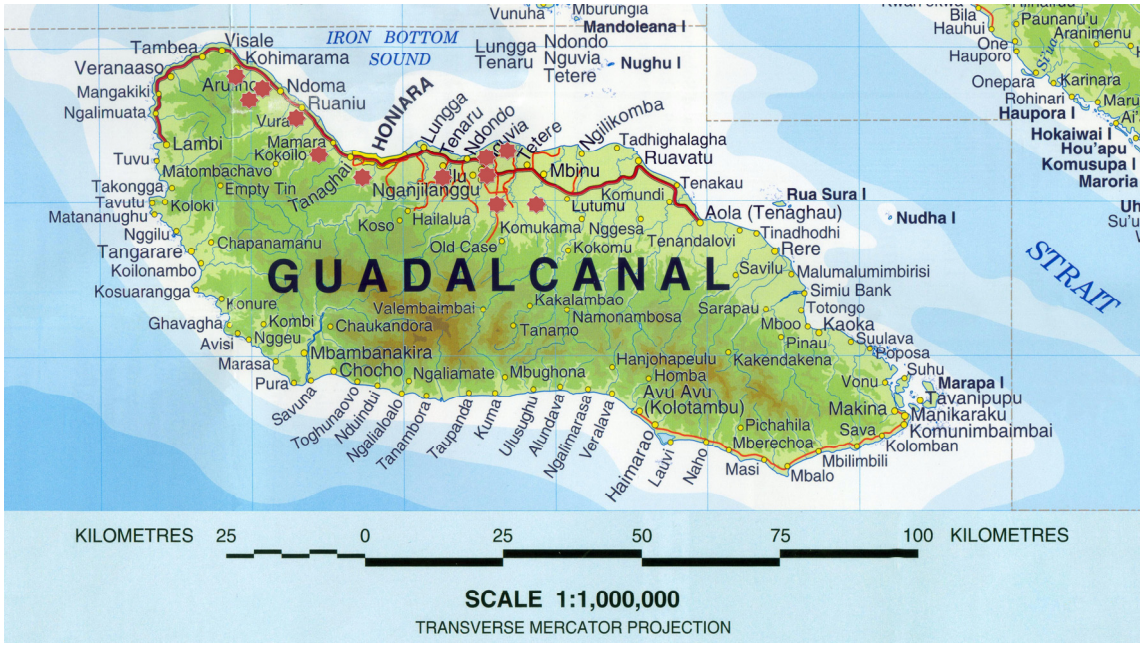
6 Annexes

Annex 1. Sample villages in Guadalcanal (maroon stars)

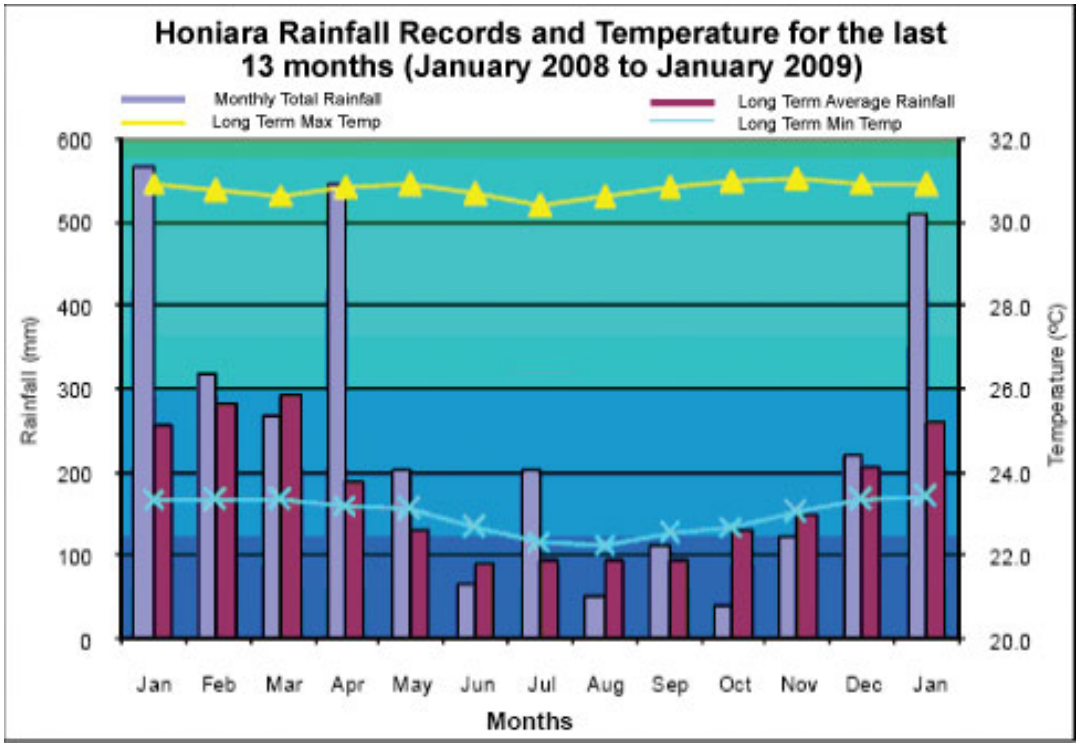


Source: Solomon Islands Visitors Bureau. *South Pacific Maps PPY. LTD.*

Annex 2. Sample villages in Malaita (purple stars)

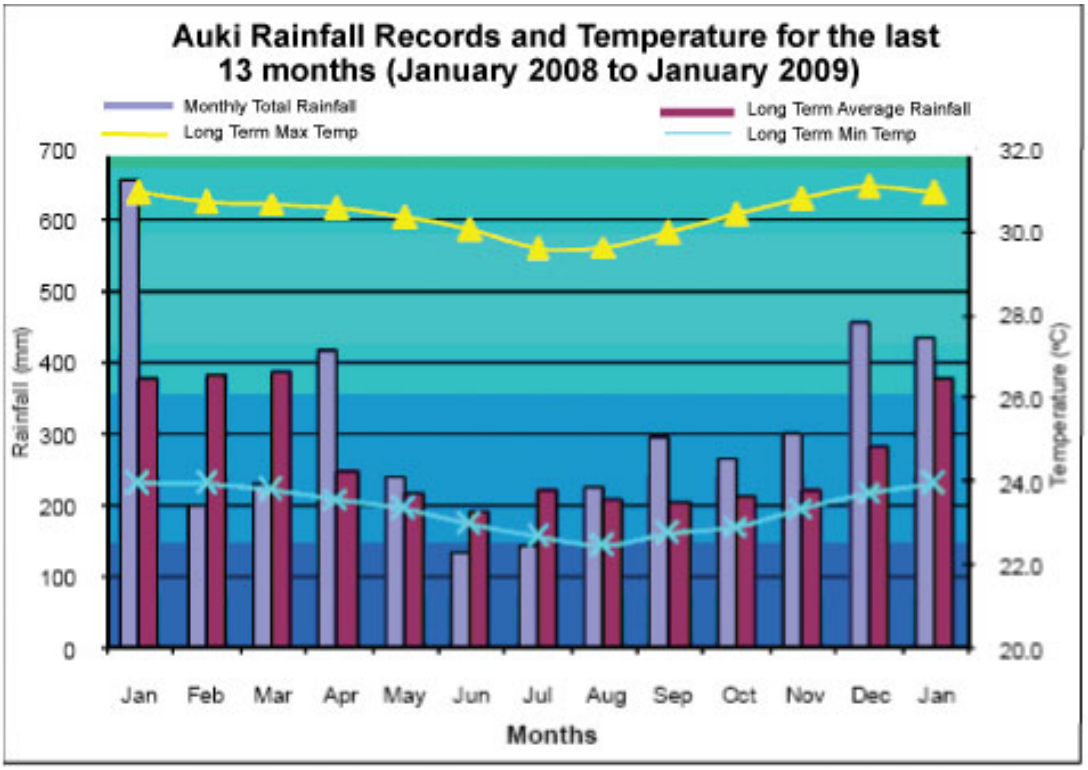
Source: Solomon Islands Visitors Bureau. *South Pacific Maps PPY. LTD.*

Annex 3. Monthly temperature and rainfall in Honiara



Source: Solomon Islands Meteorological Service, 2009

Annex 4. Monthly temperature and rainfall in Auki



Source: Solomon Islands Meteorological Service, 2009

7 Survey Team in Action



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