Kastom Gaden Association
Planting Material Network, Department of Agriculture and Livestock, and PestNet

Linking Farmers to Plant Protection Networks (Solomon Islands)

Project #1222 infoDev The World Bank

Monitoring mission to project sites
North Malaita

Mission Report 7
31 March – 8 April 2005

Sydney
May 2005
Introduction

The Linking farmers project is entering its final 6 months. The email station has been built, PRAs and surveys for pests carried out, and a programme of farmer trials established at three sites. Awareness visits to nearby communities informing them about the email station have been completed, albeit far too late. The first CFO left the project in September 2004 and a second recruited. An evaluation of the project is planned for 6-24 June 2005.

This is the 7th mission to Silolo since the beginning of the project in July 2003. The purpose was to assess progress since November and to make arrangements for the evaluation.

The report represents the opinions of those members of PestNet (Grahame Jackson), Kastom Gaden Association (Iro Ramoi) and DAL (Lily Wame and John Faleka) who took part in the Mission.

Awareness Programme

Further awareness visits were carried out 23-29 January, continuing the programme started in October 2004. The visits concentrated on villages to the east of the email station at Silolo, from Takwa to Sulugawaru, and the island of Manaoba. Those taking part were four members of the email committee, the DAL Field Officer Malu'u, and the CFO. In some villages, the visits were used to give training on a fungus affecting watermelon, causing a disease known as gummy stem blight (Takwa and Gwounasu). The itinerary of the visits is given in Annex 1.

There was general interest in email and its uses and, specifically, people liked the idea of being able to send questions to agriculture scientists who were connected to the PestNet service. The programme on natural sprays, particularly, using local *Derris* species was of special interest to farmers. The participants at the meetings also liked the idea of being able to make use of the typing services offered by the email station.

There is still need to carry out further awareness visits, to villages on Manaoba island and those in the Lau Lagoon. Also, if resources are available it would be useful to visit villages outside the project area from Bit’a’ama to Fo’ondo.

A radio programme about the project has still not taken place. It has been scheduled and postponed on a number of occasions. The Project Manager hopes to make the broadcast in April.

So far, farmers in the Project area have not visited the email station to send questions to PestNet and other networks, even though many people like the idea of being able to do so. The station has, however, been the means of keeping the project work focused on the crop problems identified from the start, enabling staff to maintain contact with the agencies involved: KGA, DAL
and PestNet. The lack of response from local farmers is not surprising: the awareness programme has been delayed for a variety of reasons and there has been no radio programmes announcing the aims of the project and encouraging people to use the station.

Visits to villages: specific crop problems

Taro: Alomae at Gwaiau

A short visit was made to Gwaiau, an inland village. A leaflet on Alomae disease was prepared in English (Annex 3) and translated by members of the Gwaiau Alomae Committee (Annex 2). Sections of the leaflet tell the reader about the cause of the disease (a virus), how to control it by cultural means and by community action, and how to keep records in order to ensure that control is being maintained. Other sections make brief statements on the impact of Alomae, the damage it does, and its impact on people’s crops and livelihoods.

Once drawings have been done by KGA, the leaflet will be printed by SPC/DSAP, Fiji.

Only some growers at Gwaiau see the wisdom of forming a group, meeting regularly and discussing Alomae and sharing information on control measures. Most would like a “medicine” to control the disease, and most likely to cure the plants once they have contracted the virus. The only “medicines” that are effective against Alomae are insecticides that kills the plant hopper vector. However, they are not necessary, they are expensive, and difficult to obtain in isolated inland villages. Good control of Alomae can be obtained by early removal of the affected plants, and routine checks to ensure that the gardens stay disease-free.

However, because of growers desire to have a spray to kill the vectors, we have been testing Derris, a commercial product containing 0.75% rotenone (Yates, Australia), and local *Derris* species. This has not been successful. Trials carried out by Johnson Ladota of Masilana village showed that the plant hoppers were not killed when plants were dusted with the commercial product (Table 1).

**Table 1.** Number of plant hoppers (different stages) on five taro plants dusted and not dusted with *Derris* sp. extract after treatment on 19 December 2005 (plants in the same garden)

<table>
<thead>
<tr>
<th>Plant No.</th>
<th>Day 0</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D+</td>
<td>None</td>
<td>D+</td>
<td>None</td>
<td>D+</td>
<td>None</td>
<td>D+</td>
</tr>
<tr>
<td>1</td>
<td>32</td>
<td>28</td>
<td>30</td>
<td>26</td>
<td>25</td>
<td>32</td>
<td>22</td>
</tr>
<tr>
<td>2</td>
<td>28</td>
<td>24</td>
<td>25</td>
<td>20</td>
<td>25</td>
<td>31</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>21</td>
<td>23</td>
<td>22</td>
<td>29</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>19</td>
<td>18</td>
<td>22</td>
<td>21</td>
<td>24</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>23</td>
<td>24</td>
<td>21</td>
<td>24</td>
<td>21</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>127</td>
<td>115</td>
<td>119</td>
<td>114</td>
<td>117</td>
<td>133</td>
<td>95</td>
</tr>
</tbody>
</table>
This result agrees with work done at LAES, Keravat, PNG, that commercial Derris insecticides do not control the taro plant hopper (John Bokoso, personal communication).

New varieties of taro

Several varieties of taro considered resistant to taro leaf blight were introduced into Solomon Islands by KGA from the SPC RGC Fiji in 2005. They were first planted at Burns Creek and later taken to Malaita and planted at Silolo. Unfortunately, the labels on the introductions in both places have been mixed, plans of field plantings lost, and it is no longer possible to identify most of the varieties with certainty. At Burns Creek, the following are present: TAN/MAL/06, TAN/IND/119, BL/PNG/13, BL/PNG/10 and some others that are not labelled.

Those introduced originally were: BL/PNG/13, TAN/MAL/06, BL/PNG/10, TAN/PHL/10, BL/PNG/11, TAN/IND/23, BL/PNG/12, TAN/IND/19, BL/SM/10, TAN/IND/06.

On Malaita, there are six varieties, but none can now be identified. Nevertheless, they are still of interest as three are showing signs of virus disease. It appears that they are affected by Bobone, and if this is so then they will recover; this will become clear in the next 2 weeks. If they do recover, the diseased and healthy plants will be taken to Masilana and planted there to compare their performance with the best of the highland varieties.

Sliperi Kabis beetle (*Nisotra* sp.): several sites

The work against the beetle (*Nisotra* sp.) attacking the leaves of sliperi kabis has continued at three villages, Gwou’ulu, Masilana and Silolo.

The chief of Gwou’ulu village, Samson Nokia, has been experimenting making aspirators (putas) so that the beetles can be sucked off the leaves. He has made several putas from Shweppe’s lemonade bottles, locally purchased plastic pipe and glue (Fig. 10). These are very effective in collecting *Nisotra*, and in a trial run working in several gardens, he has collected more than 2,446 insects from five gardens in 4 days (Table 2; and Fig. 1).

**Table 2.** Numbers of *Nisotra* collected in 4 days from slipper kabis plants at Guou’ulu village using a home-made aspirator

<table>
<thead>
<tr>
<th>Date</th>
<th>Owner of the garden</th>
<th>No. hours taken</th>
<th>No. of plants</th>
<th>No. insects collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Mar 05</td>
<td>Henry</td>
<td>7</td>
<td>10</td>
<td>1050</td>
</tr>
<tr>
<td>15 Mar 05</td>
<td>Helen</td>
<td>7</td>
<td>8</td>
<td>344</td>
</tr>
<tr>
<td>15 Mar 05</td>
<td>Unis</td>
<td>4</td>
<td>6</td>
<td>170</td>
</tr>
<tr>
<td>16 Mar 05</td>
<td>Elamu</td>
<td>6</td>
<td>9</td>
<td>282</td>
</tr>
<tr>
<td>17 Mar 05</td>
<td>Elamu</td>
<td>6</td>
<td>10</td>
<td>600</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>2446</strong></td>
</tr>
</tbody>
</table>
Samson Nokia will now make several more putas, offer these to women in the village, and train them how to use them. He has spent a considerable amount of time on the project and his ingenuity and conscientiousness are to be congratulated. We now need to know how often the beetles need to be collected to give reasonable control. His first attempts have been to collect beetles in gardens where the beetles are firmly established, and present in large numbers. If the collecting began when they first entered the gardens, collecting would be easier and control better.

Fig 1. Home-made aspirators used to collect Nisotra from sliperi kabis at Gwou’ulu village, north Malaita.

It would help considerably if we know where the beetles were breeding, but we do not. However, this aspect of Nisotra will be studied by the ACIAR plant protection project, which will continue the work of Linking Farmers after it closes in June 2005.

**Masilana**

Tests have been done at Masilana using Derris powder have confirmed its effectiveness against Nisotra. Ten plants of sliperi kabis were selected in the same garden and five were dusted with Derris and five left as controls. The numbers of beetles on each plant was recorded before the treatment and then daily for the next 7 days (Table 3).

**Table 3.** Number of *Nisotra* on sliperi kabis plants dusted and untreated with a commercial preparation of Derris 0.75% rotenone), beginning 19 December 2004

<table>
<thead>
<tr>
<th>Plant no.</th>
<th>Day 0</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D+</td>
<td>None</td>
<td>D+</td>
<td>None</td>
<td>D+</td>
<td>None</td>
<td>D+</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>21</td>
<td>20</td>
<td>12</td>
<td>17</td>
<td>6</td>
<td>16</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>18</td>
<td>16</td>
<td>19</td>
<td>7</td>
<td>20</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>12</td>
<td>10</td>
<td>14</td>
<td>7</td>
<td>19</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>8</td>
<td>5</td>
<td>12</td>
<td>5</td>
<td>12</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>15</td>
<td>6</td>
<td>11</td>
<td>2</td>
<td>14</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>72</strong></td>
<td><strong>73</strong></td>
<td><strong>49</strong></td>
<td><strong>73</strong></td>
<td><strong>27</strong></td>
<td><strong>81</strong></td>
<td><strong>9</strong></td>
<td><strong>63</strong></td>
</tr>
<tr>
<td></td>
<td><strong>81</strong></td>
<td><strong>100</strong></td>
<td><strong>48</strong></td>
<td><strong>100</strong></td>
<td><strong>22</strong></td>
<td><strong>71</strong></td>
<td><strong>10</strong></td>
<td><strong>67</strong></td>
</tr>
</tbody>
</table>
There was a substantial difference between the treated and untreated plants that was noticeable soon after application of the Derris dust; this difference was maintained until observations ceased at day 7.

Silolo

On 3 April 2005, the “real” uka collected from the bush near Gwaiau was tested, together with chilli, against Nisotra on slipperi kabis. Three sticks, 1.5-2 cm diam and 20 cm long, where crushed with stones and left overnight in 0.5 litre water. Similarly, 20 chillies were crushed and left overnight in 0.25 litre water. The extracts were strained, combined and made up to 1 litre. At approx 11 am, three sliperi kabis plants were sprayed in a garden at Silolo until run-off. The Nisotra that fell to the ground were collected using an aspirator and 40 were placed in a fruit fly trap together with a single sprayed shoot of sliperi kabis. Similar numbers of Nisotra collected from unsprayed plants were placed in a fruit fly trap with an untreated shoot as a control.

After 24 hours, 38 Nisotra were still alive on the sprayed leaves (2 had escaped), and 37 Nisotra were alive in the control treatment (3 were dead). Thus, the “real” uka does not appear to have insecticidal properties.

A further field test will be carried out using the “real” uka at the same concentration to see if it has repellent properties. This test will be done at Masilana by John Ladota. He will chose a field where Nisotra is a problem, label 10 bushes at random, spray and count the numbers of insects on the labelled bushes at weekly intervals. Another, nearby garden, will be chosen for comparison. Here, the plants will not be sprayed.

While at Takwa, a farmer reported that a person in nearby village (John Magee at the labour lines) had imported Derris from Papua New Guinea as it was reported to be a stronger fish poison than anything available locally. We are trying to find the plants to check whether they are Derris elliptica.

Watermelon diseases: Takwa area

Training was given to small groups of growers at Takwa and Gwounasu by the DAL Field Officer and the CFO on 26 January. The training covered the following: what is gummy stem blight; how it spreads; how to control it (cultural practices); and how to control it with chemicals. No exercises were carried out with the farmers due to lack of time.

During the visit covered by this report, the progress of the farmers who took seed of new varieties October was assessed. The results were very mixed, with some people planting and others not. Many of those that grew the seed have already harvested without completing the lengthy forms distributed by DAL, and so there is a lack of harvest data. Evaluation of the varieties will have to be made on verbal accounts. Some ‘stories’ were recorded during the visit and these are given (Annex 4).
Overall, the trials were not successful. Seed was given to too many growers, and many did not plant. Very few filled in the forms provided by DAL. They were far too detailed for the growers to complete. The lesson here is if you want to do experiments with farmers, make it simple, and provide training in record keeping. Above all, start with a few lead farmers first of all: if successful train others later.

Acknowledgement

We thank the communities of Gwaiau, Gwou’ulu, Gwounasu and Takwa for their hospitality in hosting the visits during the Mission. Thanks also to Lucina Konata and family at Silolo for hospitality, kindness, advice and transport arrangements. We thank infoDev World Bank and the Secretariat of the Pacific Community for funding.
### Annex 1

**Itinerary of the Awareness group**

<table>
<thead>
<tr>
<th>Day</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday 23 January</td>
<td>To selected villages to remind them of the visits</td>
</tr>
<tr>
<td>Monday 24</td>
<td>Takwa by canoe</td>
</tr>
<tr>
<td>Tuesday 25</td>
<td>Arrange farmer training in watermelon disease control at Takwa</td>
</tr>
<tr>
<td>Wednesday 26</td>
<td>Training for watermelon growers at Gwounasu</td>
</tr>
<tr>
<td></td>
<td>Awareness at Hatodea village</td>
</tr>
<tr>
<td></td>
<td>Awareness at Gwounasu village</td>
</tr>
<tr>
<td></td>
<td>Awareness at Tabahao village</td>
</tr>
<tr>
<td></td>
<td>Awareness at Suluigata village</td>
</tr>
<tr>
<td>Thursday 27</td>
<td>Awareness talks at Faurere School and Kolofe village</td>
</tr>
<tr>
<td>Friday 28</td>
<td>Awareness at Tabarara School</td>
</tr>
<tr>
<td></td>
<td>Awareness at Sulugwalu village</td>
</tr>
<tr>
<td>Saturday 29</td>
<td>Return to Silolo</td>
</tr>
</tbody>
</table>
Annex 2

Alomae: controlling the disease of taro

Lio la sulia nga mataia nia nga alo.

Nga ta na nga alomae?

- Nia nga mataia e thaungia alo si manga nga te’e kali wawa (virus) e ania alo eri.
- Nga alomae nga alo e mae ana mataia nga siko e faelea.

Wawa eri e faekwa asia na e aii sitalala ana keki rikia ana mae’e wane. Mena ana i lala alo eri nia e kwala ka oro maka labatania asia na’a. Sui mena nga wawa eri e aii si akau tala’ana. Nia e olisia lau bo’o ta siko ura kai talura ngainia fasa ta alo ura ta alo. Nga siko eri kera alangia ana “plant hopper”. Ana si manga na e fanga ma nia ka ku’ufia su’uls nga alo eri nia ka lukatania nga wawa eri i la alo eri. Nga wawa eri e kwala laubo’o ila siko eri mai manga e rafo nia ka kotho na na uria tafa alo asi manga na siko eri kai fanga.

Beta la sulia alo fasa alomae

- Toii toona o’ola sulia bongi
- Lafua alo na e mau na’a
- Lio lio lau ura tai alo na ada keka matai

Nia e inota fifi uria keki fula ila’a o’ola sulia ta ro’osi manga ila’a fiu fa thato, ita ubo’o na o’ola eri e kwaga. Kwaia ta alo na e mae keka ubona’a ania la ta era ka akoa bona’a. Ili lea bona’a ania sido eri fasia nga siko eki kesi lofo da keka tatauraulangania mataia eri. Ro’o kwaii ili la na keki ilia ania.

Unaeri: toonia alo eri ila kwade’e baeka raisi ana si manga fa alo eri kai takwe u’u. Lafu fa alo eri manga e ni la baeka eri, oko kani bona fasia mana baeka eri.

Mada: Thafe’e ofua reana alo eri fafia siko eki sui, oko rau ofua abe’e alo eki oko lafua si manga siko eki kera katu i ofina alo eri.

Lio ladao sulia betalaua

- Figua toa ni ra ki
- Ra ofu mala te’e ofufua

Nia e lea ura ania nga toa na keki kilu keki ofu ma keki to i la ofufua eri. Fasi keka kwaia domi kwailiu ani kera. Masa kesi ofu kera toa na kera to e’eta neri keki talaurangania alomae eri ka toto bana. Nia keki ofu manata ura rao ofu la fasi Alomae ka sui.

Beta’a u’unua sulia alo
• Keda si do na o riki daki
• Oko u'unu tania si do eki sana tai wane ki lau

Oko te’e mania fita fa alo na e mae ana si manga ki sui na o fula ila o’ola oe. Muka fa’arongoa ana si do eki ana si manga, na muki ofu ura u'unu la, fasia muka thai to’omana si do mulu ili daki neri e ra’a mada e aii. Masa ka ra’a na muka ado mia lau, bo’o tai wane na kera thafali ra’a.

Bobone

Bobone karangia kai uria lau b’o alomae. Wawa bakai falea alomae nia lau bo’o ne falea bobone. Ma alo na e bobone kai maru ki lau bana e aii si mae. Buira alu wiki ma fau wiki nia kai maruki lau bana ma ngongothe doo fa’alu kai tae’e lau bana.

I Malaita, na alo ne’e ai si mae kera alangia ana alokini mada alo i abasi. Ma alo na kai mae kera alangia ana alowane mala alo fili.

E aii kusi lafia lau al one bobone sulia alo eri kai maruki lau bana. Nia e lea uria kusi kilu ofu ana alo kini bia alo wane ila te’e o’ola.

Alomae e labatania alo

Si do totole nao keki rikia ana alo ne mae, na reana kai lelegu, bia kakau alo fu kai ku kura. E aii ta re’edo se’elea si tagwasu lau, ma re’edo ne rafo na’a ka taru toli bona’a. Si tau re’edo’o fu ka thalali dura ma alo fu ka mae bona’a.

Ta’alana alomae ana alo

Masa alomae kesi lio lalangania sulia, asi manga na o thafali rikia ila o’ola ma e au osi lafua, na mataia fu kai akau aliali, ma o’ola alo eri kai mae te’efau bona’a. Sulia na siko alomae kai lofo ka dauria lau bo’o ta o’ola na alomae e au si fula u ilana, maka falea lau bo’o mataia eri.

Ta’alana alomae fana maruku lakulua

Annex 3

Controlling the Alomae Disease of Taro

What is Alomae
It is a disease of taro caused by a virus
It is spread by an insect

A virus is so small it cannot be seen with the eye. But inside the plant it multiplies and does great harm. The virus cannot spread alone. It needs an insect to take it from one plant to another. The insect is called a plant hopper. As it feeds on the taro juices it sucks up the virus. The virus multiplies inside the insect, and when ready passes to healthy taro as the plant hopper feeds.

How to Control Alomae
Inspect gardens regularly
Pull out plants with Alomae
Keep checking for other diseased plants
Be careful when re-planting

It is very important to visit the garden at least twice a week, starting when the plants are still small. Pull out the plants with Alomae and burn them. Do this carefully so that the insects do not fly away and spread the disease. This can be done in two ways.

Either: place a rice bag over the plant, trapping the insects inside. Pull out the plant and tie the top;

Or: slowly fold any leaves, trapping the insects inside, and then bring the stalks together so that the insects are trapped at the bottom of the plant. Pull out the plant.

When taking planting material from a garden that has had alomae, take it far away from where diseased plants were removed. And then check the new garden at least twice a week.

Maintaining Control
Form farmer’s’ groups
Work together as a community

It is important for all taro growers in the community to be part of a farmers’ group. Members of the group can help each other, give advice and encouragement: if some people do not control Alomae, the plant hopper will move from an infected garden to a healthy one. Working together will control Alomae; working alone will not.
Keep records
Write down what you see
Tell each other your results

Each farmer should keep a count of the number of Alomae plants pulled out each time a garden is visited. Then at each meeting of the group, the number is recorded. In this way, farmers will see if the control measures are working, and help those who are still having problems.

Bobone

Bobone is related to alomae. It is caused by the same virus. But plants that get Bobone are resistant to alomae. After 3 to 4 weeks they recover and the new leaves look healthy.

On Malaita, the resistant varieties are called ‘female’ taro, whereas those that die from alomae are called ‘male’ taro in coastal areas.

There is no need to pull out plants with Bobone because the plants will recover. But it is best not to grow female and male taro in the same garden.

Damage caused by Alomae

The first sign of alomae is a leaf that remains rolled with a short stalk. No more leaves develop, and the older leaves bend downwards. Soon, the leaves start to rot and the taro dies.

Impact of Alomae on crops of taro

If alomae is not controlled when first seen, the disease spreads very quickly and all the plants are killed. Then plant hoppers fly to healthy gardens and spread the disease.

Impact of Alomae on livelihoods

Farmers worry about Alomae. Taro is important to growers in isolated, inland, villages. It provides a nutritious food favoured by the family and, when sold at local markets, much needed cash. Alomae can have a devastating impact on food security if not controlled.

Acknowledgements

We thank the farmers of Gwaiau village, north Malaita, who helped with the production of this leaflet by sharing their experiences and the knowledge handed down from past generations. We also thank Lucian Konata, Silolo, for help in translation. The support of infoDev World Bank to the project Linking Farmers to Plant Protection Networks (Solomon Islands), and SPC DSAP for printing the leaflet is gratefully acknowledged.
Report from the Takwa farmers

Betty koidi: Betty planted Klondike no. 2. She planted 26, but only 12 germinated and after planting three died. As a comparison she grew 15 Empire no. 2. Betty has little idea about pesticides: which is a fungicide, which is an insecticide. She is not sure what she applied, but she applied it frequently as a preventive measure. She did not count the number of fruit produced on either variety.

Ben Luda: Ben planted the same varieties as Betty. He said that Klondike produced less fruit. It was ready in 48-50 days, but if harvested earlier the texture was rubber.

Sisia Kani: Planted 25 New Dragon and six died. She noticed insects present at the fruit stage and applied Orthene. The fungus came later when it was dry, but it did not spread. She harvested 10 fruits. The taste was good, and the “meat” was good too: it was very sweet. She thinks that the variety is as good as Empire no. 2, but the latter produced larger fruit.

Roko Aldo: Roko planted Early Klondike. There was no problem in the nursery and in the field the variety grew well at first, but near to harvest it started to die. The rain was said to be the cause. She did not apply any sprays or fertiliser, as she did not have any. The test variety had larger fruits than Empire no. 2.

Elson Mark Ki’i: Elson planted New Dragon and Empire no. 2. The plants in the nursery did not do well: they were attacked by insects and fungus, but they were covered with white plastic if it rained. In the field New Dragon was also affected by fungus (or was thought to be). Plants of Empire no.2 were also affected. All the leaves were blighted, and only 10 fruits were harvested from each variety, weighing 9-12 kg each. Empire was the better of the two. New Dragon was soft, but that may have been because it was over-ripe when harvested.

Felix Wao: Felix planted Early Klondike and Empire no. 2. There were no insects in the nursery, but black spots were seen at transplanting. He applied fertiliser. Rains came at fruiting and the small fruit fell off the vines. There were plenty of insects, probably because he planted close to another plot of watermelon. He only got one fruit from Early Klondike, but did not taste it or weigh it.

Report from the Gwounasu farmers

Ethel Samane: Ethel planted Flower Dragon. Twenty of the 40 seeds germinated and grew well after transplanting. Five fruit were allowed per vine; they were a good shape and size, and weighed 6-7 kg each. The ‘meat’ was strong, but there were many seeds. Some of the fruits cracked when maturing. The Empire no. 2 seeds also germinated poorly, but there were many fruits and they were larger than Flower Dragon. They were also sweeter. Overall, this was the best of the
two. It was not clear what pesticides were applied, although Dithane may have been obtained from Mariano Lauga, the Principal Extension Officer, DAL.

**Watson Samu:** Walter planted Flower Dragon. The plants grew well in the nursery in a mixture of soil and chicken manure, but some died when transplanted to the field. Only 20 of each variety were planted. The fruit were large, but by the time of harvest there were only 10 fruits of Flower Dragon, and only one of Empire no. 2. No fertiliser was applied, and no pesticides, because he was worried about using ICON, the malaria spray. Insects were present and so was gummy stem blight. Three weeks before harvest, GSB was bad and all the leaves were destroyed.

**Alek Sade:** Alek planted Farmer Giant and Sky Glory, with Empire no. 2 as the control. Fungus was noticed in the nursery on all three varieties, but as he had no fungicide he did nothing. Some of the plants died in the field at transplanting. He controlled the insects in the field, but wanted to find out if the test varieties were resistant to gummy stem blight, so he did not apply fungicides. But all were equally susceptible. Flower Giant and Sky Glory set good fruit, but the fungus was the problem. One or two fruits of Sky Glory were large and round, the others were small. Flower Giant had thick rind, and it was sweet. It was better for transporting than Flower Mountain.

**Philip Lone:** Philip grew Green Mountain and Empire no. 2. He used topsoil and chicken manure as a potting mixture. Both the varieties grew well, except 2 or 3 Green Mountain were infected by fungus and died. Orthene (x4) and Bravo (x2) was used in the field. The flowering was good and fruiting, too, on both the varieties. But overall, Empire no. 2 was better. He had a problem with marketing, so he sold locally, but could obtain only $15 for the largest fruits, which was not profitable. Green Mountain tasted good and was sweet, but so, too, was Empire no. 2.

**George Kaeni:** George planted Sky Glory and Empire no. 2. Both grew well in the nursery, and in the field, with only one or two dying from fungus. He controlled the insects (x4 carbaryl) and fungus (x3-4 Fungus Fighter, a liquid). Yields were good, up to 8 kg per fruit, but marketing was the problem. Sky Glory had a thicker rind compared to Empire no. 2, but both had good taste.