



University of the  
Sunshine Coast  
Australia



## **Enhanced Fruit Systems for Tonga and Samoa Community-based Systems for Tonga and Samoa**

### **Trip Report**

**Samoa 19<sup>th</sup> – 30<sup>th</sup> April 2023**



## TABLE OF CONTENTS

<b>Summary</b>	<b>Page</b>	<b>3</b>
<b>1 Timetable of events</b>		<b>3</b>
<b>2 THE WORKSHOP</b>		<b>4</b>
<b>DAY 1:</b>		
<b>Tuesday 25<sup>th</sup> April: The Workshop</b>		
2.1 Introductory Remarks		4
2.2 Responsibilities of food processors		4
2.3 Options for preserving food		6
<b>DAY 2:</b>		
<b>Wednesday 26<sup>th</sup> April</b>		<b>10</b>
2.4 Approach to Product Development		
2.5 Persuading customers to buy		12
<b>DAY 3:</b>		
<b>Thursday 27<sup>th</sup> April</b>		
2.6 Conformance to Regulations		12
2.7 Review and Sustainability		18
<b>3 Review and Future Work</b>		<b>19</b>
<b>APPENDIX 1 EQUIPMENT AND CONSUMABLES FOR SMALL -SCALE PROCESSING</b>		<b>20</b>
<b>APPENDIX 2 WORKSHOP PROGRAMME</b>		<b>21</b>
<b>APPENDIX 3 WORKSHOP PARTICIPANTS</b>		<b>23</b>
<b>APPENDIX 4 PARTICIPANT SCORES FOR PRODUCTS MADE</b>		<b>24</b>

## **Summary**

- Value-adding has been identified as an important aspect in the sustainability of the ACIAR project since it will provide a important outlet to exploit increased supply of citrus fruits that will ensue.
- This intervention details the events leading to the delivery of one of two Workshops making up Milestone 3.
- All resource personnel collaborated to identify and procure equipment and consumable items considered necessary for the Savaii workshop (Milestone 4).
- SROS staff identified and contacted participants relevant to the farmer collaborators in Savaii.
- Significant emphasis has been placed on practical value adding workshop interspersed with formal instruction in key elements of preparing food for others to purchase and consume.
- Fourteen products were prepared by participants and three promising products for further development emerged from an informal poll.
- These will be the basis of further exploitation during upcoming visits.

### **1 Timetable of events**

- Wednesday 19<sup>th</sup> April: Travel, Pacific Harbour – Nadi – Apia
- Thursday 20<sup>th</sup> April: Orientation with SROS Team
- Friday 21<sup>st</sup> April: Costing and Procurement of Equipment and Consumables for the Workshop
- Saturday 22<sup>nd</sup> April: Final Procurement and Briefing for Workshop
- Sunday 23<sup>rd</sup> April: Travel to Savaii
- Monday 24<sup>th</sup> April: Readiness for the Workshop
- This was conducted at the MAF facility at Asau, Savaii
- Monday 1<sup>st</sup> May Apia – Nadi – Pacific Harbour

## **THE WORKSHOP**

## 2 Tuesday 25<sup>th</sup> April[]

### 2.1 Introductory Remarks

- Participants welcomed and acquainted with the programme.

#### **Introductions and Collaborative Expectations**



- Stressed that this was a food processing workshops during which participants are to be trained in food preservation.
- Sustainability is extremely important and, although the first emphasis is placed on citrus fruits grown in the area, other products based on starchy staples may be necessary to ensure continuance.
- The emphasis is placed on practical work and that income is to be generated from products so that consumable items can be replenished.

### 2.2 Day 1: Session 1 - Responsibilities of food processors

- Power point presentations (PPTs) were used for instruction purposes.
- Preserved food for others to eat (consumers) must be safe and wholesome.
- Of the three common hazards associated with food – physical, chemical and biological – bacterial contamination is the highest risk.
- Hygienic food handling practices are of paramount importance in reducing that risk.
- It must be the same every time because most food is hidden from our view.

#### **Food Handling and Hygiene**





*Practical: Me Too Product development (Jam).*

Washing up ready to start



## Preparing Sterilants

### An Enthusiastic Start



### An Enthusiastic Start



## 2.3 Day 1: Session 2 - Options for preserving food

- PPT presentation was given on the options for preserving food in the context of small scale processing in rural environments.

- Exploitation of local environments such as avoiding high temperatures, using locally available preservatives such as salt, acid from citrus, sugar and some spices and herbs.

Preparing the fruit



Ready to Go











**First Products**



#### 2.4 Day 2: Session 3 – Approach to Product Development

- Developing ideas for new products by copying (Me Too) and expanding on that idea for novelty and convenience.
- Keeping records of formulations and costs of ingredients.

##### **Interactive Review of Practical Session**



*Practical: New product development*

##### **Steps in the Development Process – Idea Generations**



**Fruit Cordial**





**Practical Processing In Action**



2.5 Day 2: Session 4: Persuading customers to buy.

- Introducing the concept of comparative advantage.
- Extending the range.
- Reducing costs to provide value for money

### Trial and Error



*Practical: Completely new product prototype.*

### 2.6 Day 3: Session 5: Conformance to Regulations

- Refresh hygienic handling practices.
- Standards and Regulations.
- Labelling

*Practical: Modifications of Formulations – extending valuable components*

### Recording a New Formulation



### High Quality Products from High Quality Fruit





**Sugar – Moderation in its Use**



**A New Product on the Horizon**





### **Demonstrating Hot Filling**



### **Orange Drizzle for Ice-cream and Pancakes**





**Standard Hot, Overflow Filling Techniques**



**Orange Chili Salsa**





**Lemon Juice for Pickling (Chili)**



## Keeping records



### 2.7 Day 4: Review and Sustainability

- Fourteen products were produced but the participants eliminated some and those products (pickles in lime juice) require time for penetration of flavours to percolate.
- However nine products were considered to be candidates for further refinement.
- Because sustainability is considered to be germane a products not based on citrus were included.
- The scores awarded by participants and are shown in Appendix 3.





### 3

#### Review and Future Work

- Continued support for workshop participants will be provided to ensure all steps are taken for sustainability.
- This workshop is the first of two required in Milestone 4.
- Of the products prepared by the participants, three have commanded high acceptance ratings.
- These are promising candidates for further exploitation.
- Acceptability scores however were solicited among participants whose objectivity may be skewed.
- Further taste panel work is required using Hedonic scale techniques with independent assessors.
- Once established this will form the basis for full commercial exploitation designated at Milestones 5 and 6.
- The following products were selected for further refinement during the second workshop that completes Milestone 4.

#### APPENDIX 1

##### EQUIPMENT AND CONSUMABLE ITEMS FOR PILOT SCALE PROCESSING

	SIZE	Approximate cost	NUMBER
COOKING POTS (JAM PAN DESIGN)	10 LITRE	WST 195	2
LARGE STAINLESS STEEL SPOONS	250ML	WST 20	10
PLASTIC BUCKETS	20 LITRE	RECYCLE	3
LARGE STAINLESS STEEL PERFORATED SPOONS			
FINE MESH STAINLESS STEEL SIEVES	500ML	WST 35	3

<b>DOMESTIC BLENDER WITH ADDITIONAL SPICE GRINDER ATTACHMENT</b>	<b>1.5 L</b>	<b>WST 850</b>	<b>1</b>
<b>SPOUTED PLASTIC JUG</b>	<b>1 LITRE</b>	<b>WST 35</b>	<b>2</b>
<b>IMPULSE PLASTIC BAG SEALER</b>		<b>FJD 40.95</b>	<b>1</b>
<b>SET OF PLASTIC FUNNELS</b>	<b>10, 5 &amp; 2 cm</b>	<b>WST 45</b>	<b>2 SETS</b>
<b>PERFORATED SPOONS</b>	<b>LARGE</b>	<b>WST 8</b>	<b>5</b>
<b>TWO RING GAS BURNER</b>		<b>WST 170</b>	<b>1</b>
<b>RPROPANE GAS CYLINDER</b>		<b>WST 72.60</b>	
<b>KITCHEN SCALES</b>	<b>0-20Kg</b>	<b>WST 65</b>	<b>1</b>
<b>LIQUID FUNNELS</b>	<b>5 LITRE</b>		<b>4</b>
<b>CUTTING BOARD</b>		<b>WST 15</b>	<b>4</b>
<b>PLASTIC BUCKETS</b>	<b>5 LITRE</b>	<b>WST 15</b>	<b>4</b>
<b>GLASS JARS</b>	<b>600g</b>		

#### **Consumables**

	<b>SIZE/NUMBER/WEIGHT</b>	
<b>SUGAR</b>	<b>10 Kg</b>	<b>WST 20</b>
<b>GLASS JARS</b>	<b>600g</b>	<b>WST 1,000</b>
<b>DISPOSABLE GLOVES</b>	<b>100</b>	<b>WST 18</b>
<b>COOKING OIL</b>	<b>20 L</b>	
<b>VINEGAR</b>	<b>20 L</b>	

#### **APPENDIX 2**

#### **WORKSHOP PROGRAMME**

**April 25<sup>th</sup> – 28<sup>th</sup>**

#### **Day one April 25<sup>th</sup>**

8.30- 9.00

Introductions and Workshop Expectations

9.00 10.00

Responsibilities of food processors

	Hygiene
	Food Handling Maintaining Premises
<b>10.00 – 12.30</b>	<b>Practical: Me Too Product development (Jam)</b>
1.30 – 2.00	Options for preserving food
	Temperature
	Environment (moisture, acids, salt sugar. Other)
<b>2.00 – Finish</b>	<b>Practical: Finish earlier product: Prepare for Day 2</b>
<hr/>	
<b><u>Day 2 April 26<sup>th</sup></u></b>	
8.30- 9.30	Review and What shall we make?
	Product development (ideas, approach)
	Record keeping
<b>9.30 -12.30</b>	<b>Practical: New Product Development</b>
1.30 – 2.30	Persuading consumers to buy: sustainability
	Comparative advantage
	Extending the range
<b>2.30 – Finish</b>	<b>Practical; New Product Development</b>

## REVIEW OF PROGRESS SO FAR

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### **Day 3 April 27<sup>th</sup>**

8.30 – 9.30	Responsibilities
	Refresh hygiene
	Standards and Regulations
<b>9.30 – 12.30</b>	<b>Practical: Refinement of the formulations</b>
	Assessment – tasting

### WIND-UP

With which products should we continue to refine

### CLEAN-UP

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**Day 4 April 28<sup>th</sup>**

**VOLUNTARY ATTENDANCE  
QUESTIONS AND ANSWERS**

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**APPENDIX 3 WORKSHOP PARTICIPANTS**

<b>NAME</b>	<b>ADRESS/VILLAGE</b>	<b>PHONE</b>	<b>EMAIL</b>
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**APPENDIX 4**  
**PARTICIPANT SCORES FOR SAMPLES PRODUCED**

SAVA'I'I PRODUCTS	
PRODUCTS	FAVORITES
ORANGE CORDIAL (1.5)	✓✓✓✓
ORANGE CORDIAL (1.3)	✓
Chunky ORANGE MARMALADE	
ORANGE JAM	✓✓✓✓✓
Chunky Lime MARMALADE	✓✓✓✓
ORANGE CHILLI SALSA	✓✓✓✓
CHILLIES + LIME JUICE	✓
PINEAPPLE CHILLI CHUTNEY	✓✓✓✓✓✓✓
PAPAYA CHILLI CHUTNEY	✓✓✓
PANCAKE ORANGE DRESSING	✓✓✓✓✓
BANANA CHIPS	✓✓✓✓
TARO CHIPS	✓