Report on the Soil Management Project's Dr Soil Field Day Training in Samoa

1.0 Introduction

A Dr Soil Field Day organised by the University of the South Pacific (USP) in collaboration with the Pacific Community (SPC) Land Resources Division was held at the USP Samoa Campus on Friday, 29th October 2021. The field day was a component of the "Soil Management in Pacific Islands: Investigating nutrient cycling and development of the soils portal" Project, funded by the Australian Centre for International Agricultural Research (ACIAR), with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) as the lead organisation for the project. Other project partners are SPC and Manaaki Whenua Landcare Research (MWLR) of New Zealand.

The Dr Soil Field Day was attended by 12 agricultural officers and soil technicians from the Scientific Research Organisation of Samoa (SROS), Ministry of Agriculture and Fisheries (MAF) and USP (Table 1) and details on attendance is given in Appendix 1. The participants were 10 males and 2 females (one each from SROS and MAF). The facilitator was Dr. Mohammed Abdul Kader, a Senior Lecturer in Soil Science at USP, Samoa Campus.

Table 1. List of the participants attending the Dr Soil Field Day at USP Samoa Campus

No.	Name	Gender	Job Title	Organisation
1	Pueta Tanielu	Male	Principal Development Officer	MAF
2	Mikaele Te'o	Male	Advisory Officer	MAF
3	Jennifer Ah Ching	Female	Assistant Advisory Officer	MAF
4	Philip Reti	Male	Senior Research Scientist	SROS
5	Olo Aleni Uelesi	Male	Senior Research Scientist	SROS
6	Tataifono Faaiuiga Tavita	Male	Research Scientist	SROS
7	Helmy Sasulu	Female	Research Scientist	SROS
8	Mao Petelo Lepou	Male	Research Scientist	SROS
9	Michael Sefilino	Male	Technician – Tissue Culture	USP
10	Dean Seuoti	Male	Technician – Soil Science	USP
11	Samuelu Saulia	Male	Technician – Soil Science	USP
12	Viliame Savou	Male	Senior Technician	USP

2.0 The Field Day Activities

A summary of the day's programme is shown in Appendix 2.

2.1 Welcome and Pre-training evaluation

The field day was officially opened by Dr. Kader, who welcomed the participants. He provided background on the project and the collaboration between USP and SPC on the soil extension activities as part of the Pacific Soil Portal and its utilisation and the Pacific Soil Doctors programme for proper soil management in the Pacific region. A pre-training evaluation form was provided to the participants, to gauge their current knowledge on soil sampling and preparation.

2.2 Presentation on Soil Sampling Protocol

For the theory component, a 50-minute presentation was made on soil sampling protocols such as field area requirements for collecting composite samples, the sampling depth for different crops grown in the Pacific, the ideal time(s) to collect soil samples, the soil sampling procedures and handling of samples, and recording of information on the soil samples prior transporting to soil any laboratory for analysis. The objectives of the Dr Soil Field Day, and the Pacific Soils Portal to be hosted by SPC were also outlined.

Figure 1. USP Senior Lecturer in Soil Science Dr. Abdul Kader delivering presenting at the Dr Soil Field Day.

2.3 Soil Sampling in the field

Following the soil sampling lecture, participants used the USP Samoa Campus vegetable farm to practice soil sampling.

Use of spade to collect soil samples was demonstrated, as an alternative to the soil auger that most of the officers are familiar with. The importance of the collection of data on the soil was stressed by Dr Kader, this also include recording the GPS information on the collection site, as these are useful information for the Soil Portal.

Participants firstly marked the sampling spots in zigzag formation on a map and soil samples were collected accordingly to produce a composite sample. The samples were collected and prepared following the soil sampling protocols introduced in the lecture.

Figure 2. Dr Soil Field Day participants collecting soil samples in the field

After collecting soil samples in the field, those were taken to the USP Soil Science lab where demonstrations were made on the correct way of selecting samples for analysis and in making sure that the sample is not biased but representative of the whole field.

Figure 3. Demonstration on the proper preparation methods and selection of soil samples for analysis

2.4 Soil Analysis using the Palintest kit

Two Palintest kits, each belonging to USP and SROS respectively, were used by the participants to analyse the soil samples they had prepared earlier with guidance from the USP lab team. For purposes of this training, only four soil parameters were analysed. The parameters for analyses

include Soil pH and lime requirement, Soil electrical conductivity (EC), exchangeable K and Olsen P. The participants successfully produced three sets of results from the analyses of the soil samples.

Figure 4. Participants from MAF analyzing soil samples using the Palintest kit

2.5 Interpretations of Palintest kit results

Introduction was made on the interpretation of soil analysis results acquired using the Palintest kit. The soil analysis results obtained by the participants were used to describe the soil they collected, and relevant recommendations which can be useful for agricultural officers when advising with farmers.

Additionally, the analysis results were critical and could be used to update the soil data for Samoa, and similarly for other Pacific Islands. These trained Soil Doctors will be the frontline staff to train Samoan farmers on proper soil management as well as assist in updating Samoan soil data on the Pacific Soils Portal.

2.6 Certificate Award Ceremony and Closing

A post-training evaluation was conducted when concluding the Dr Soil Field Day to gather the participant's responses and assessment of the achievements of event. Dr. Abdul Kader thanked the participants for taking part in the Dr Soil Field Day, and stated that this was a pilot and could be the first of several future field days.

The field day was concluded with closing remarks by the Discipline Coordinator of the School of Agriculture and Food Technology of the University of the South Pacific, Associate Professor Siaka Diarra who also awarded the certificates to the participants on behalf of the organisers, USP and SPC. In his closing remarks, the Coordinator congratulated the USP team for a successful field day, and acknowledged the participants of other organisations. He said the event strengthened collaborations between the institutions and the government ministry.

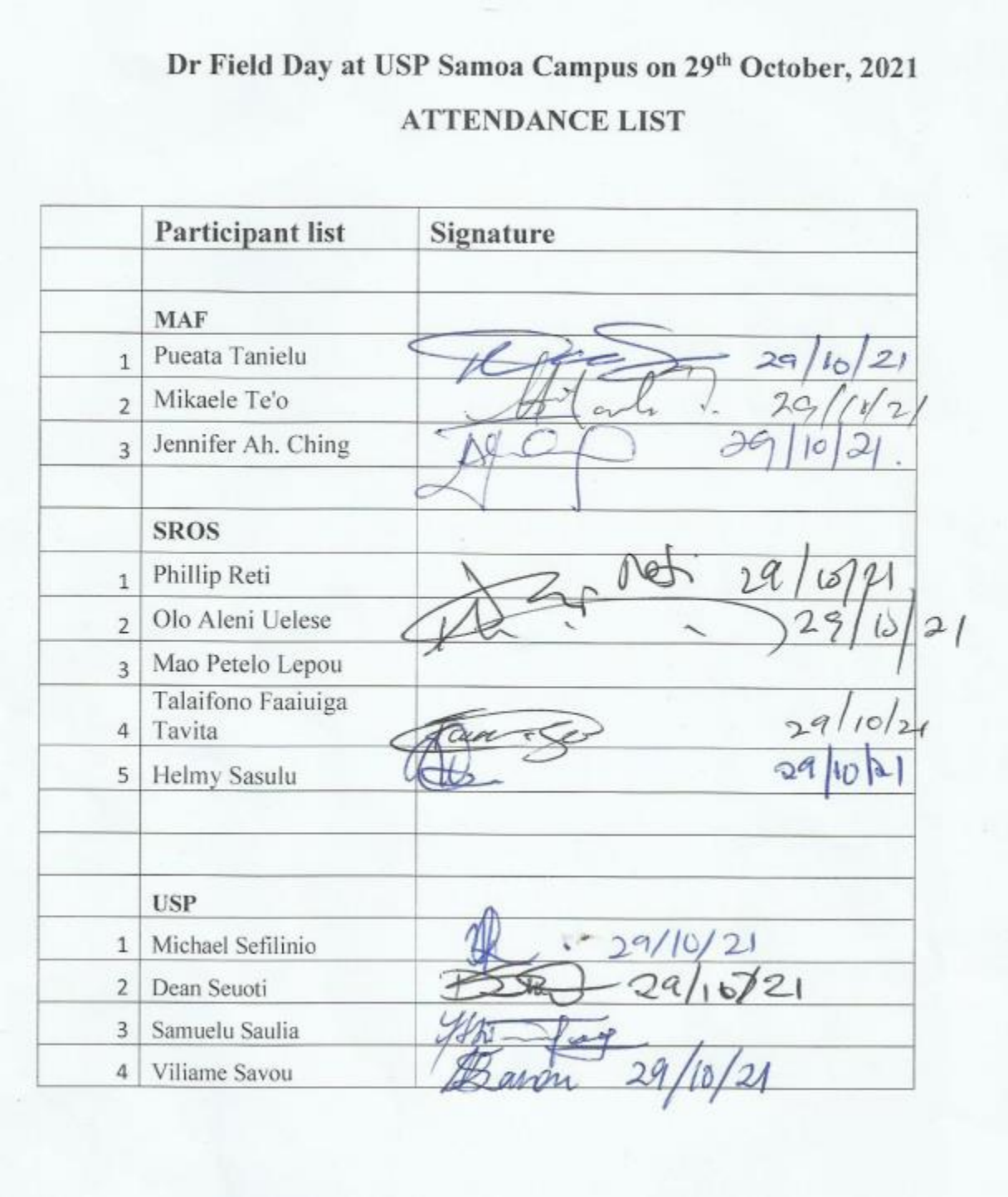
Figure 5. Associate Professor Siaka Diara and Dr. Abdul Kader with participants of the Dr Soil Field Day

Some of the participants had perceived that the Dr Soil Field Day training was useful and would help them in their work, especially when providing technical advice to the farmers. Others also learned the procedures of soil sampling. Details on the responses are shown in Appendix 4.

Acknowledgement

The Dr Soil field day would not have been possible without the financial support of the "Soil Management in Pacific Islands: Investigating nutrient cycling and development of the soils portal" project funded by ACIAR and the guidance and financial support by SPC Land Resources Division. Finally, a sincere gratitude to the Samoan Observer reporter Ms. Adel Fruean for providing media coverage of the field day event.

Appendix 1 – Dr Soil Field Day Attendance



Dr Field Day at USP Samoa Campus on 29th October, 2021

ATTENDANCE LIST

	Participant list	Signature
	MAF	
1	Pueata Tanielu	29/10/21
2	Mikaele Te'o	29/10/21
3	Jennifer Ah. Ching	29/10/21.
	SROS	
1	Phillip Reti	29/10/21
2	Olo Aleni Uelese	29/10/21
3	Mao Petelo Lepou	
4	Talaifono Faaiuiga Tavita	29/10/21
5	Helmy Sasulu	29/10/21
	USP	
1	Michael Sefilinio	29/10/21
2	Dean Seuoti	29/10/21
3	Samuelu Saulia	
4	Viliame Savou	29/10/21

Appendix 2 – Dr Soil Field Day Program

Dr Soil Field Day Programme schedule

Programme: Dr Soil Field Day

Venue: USP Samoa Campus, Alafua, Apia, Samoa

Date: 29/10/2021 (Friday)

Time	Topic/Activity	Facilitator
9.00am-9.10am	Pre-evaluation	Dr. M.A.Kader & lab team
9.10am-10.00am	Lecture on Soil Sampling collection protocol	Dr. M.A.Kader
10.00am-10.15am	Tea break	
10.15am-11.00am	Field-Soil sampling in the field	Dr. M.A.Kader & lab team
11.00am-12.00am	Lab-Soil sample preparation (compositing, sieving, bagging and tagging)	Dr. M.A.Kader & lab team
12.00pm-1.0pm	Lunch break	
1.00pm-3.00pm	Lab-Soil analysis by using Palintest kit	Dr. M.A.Kader & lab team
3.00pm-3.15pm	Tea break	
3.15pm-3.45pm	Lecture and Practice-Interpretation of Palin test results	Dr. M. A. Kader
3.45pm-4.00pm	Post-evaluation	Dr. M.A.Kader & lab team
4.00pm-4.30pm	Certificate ceremony	Dr. M.A.Kader & lab team

Appendix 3 – Sample of the Certificate issued to the participants

USP
THE UNIVERSITY OF THE SOUTH PACIFIC

SPC
Secretariat of the Pacific Community

Certificate of Participation

This is to certify that

Mao Petelo Lepou

has participated in the

Dr Soil Field Day

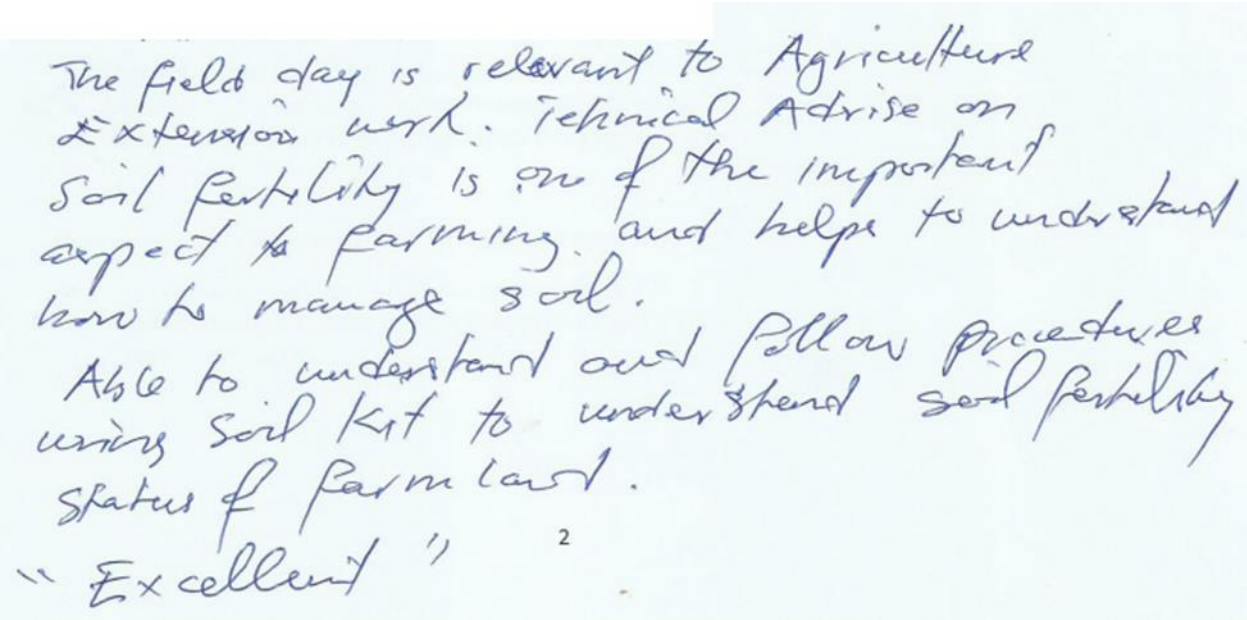
on October 29th, 2021

at the Soil Science Laboratory, The University of the South Pacific, Samoa Campus, Samoa

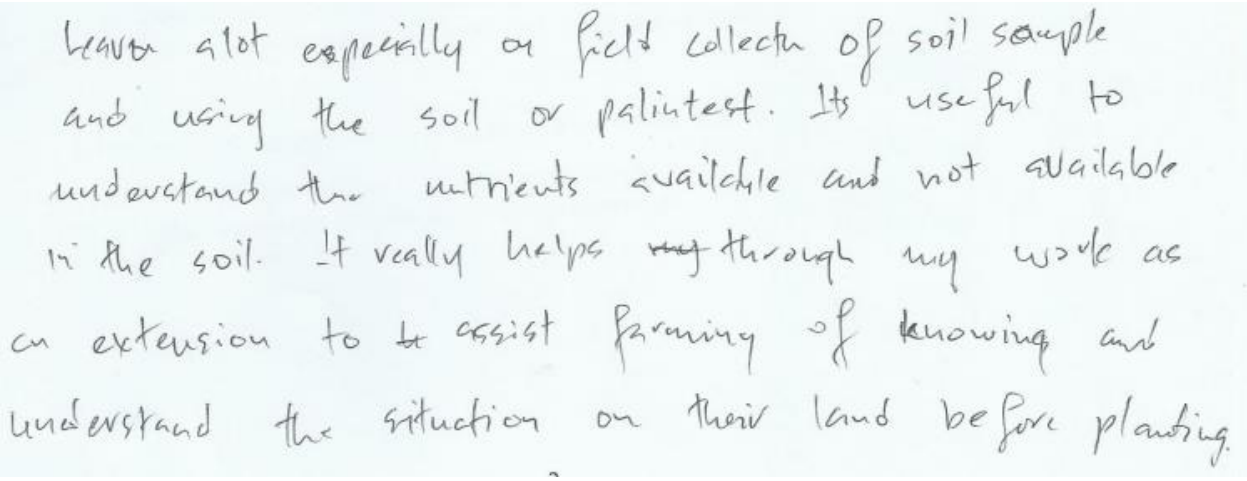
Dr. Md. Abdul Kader
Senior Lecture in Soil Science
The University of the South Pacific

Appendix 4 – Responses from participants after the field day

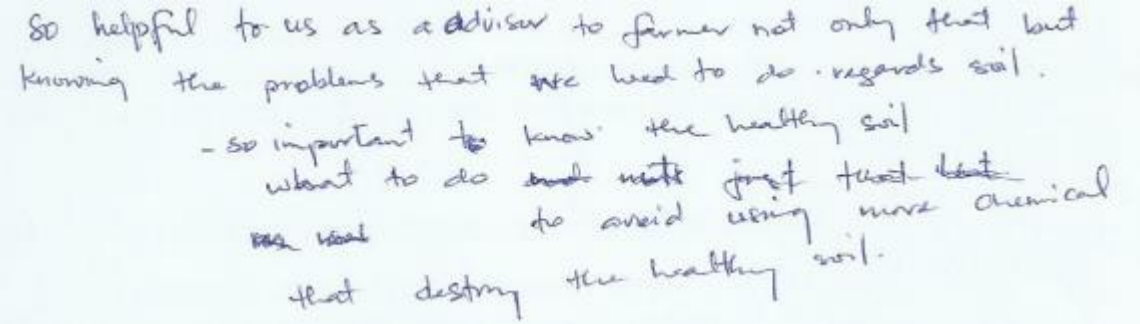
Pueta Tanielu	Male	Principal Officer	Development	MAF


The field day is relevant to Agriculture Extension work. Technical Advise on soil fertility is one of the important aspect to farming and helps to understand how to manage soil.
Able to understand and follow procedures using soil kit to understand soil fertility status of farmland.
" Excellent "

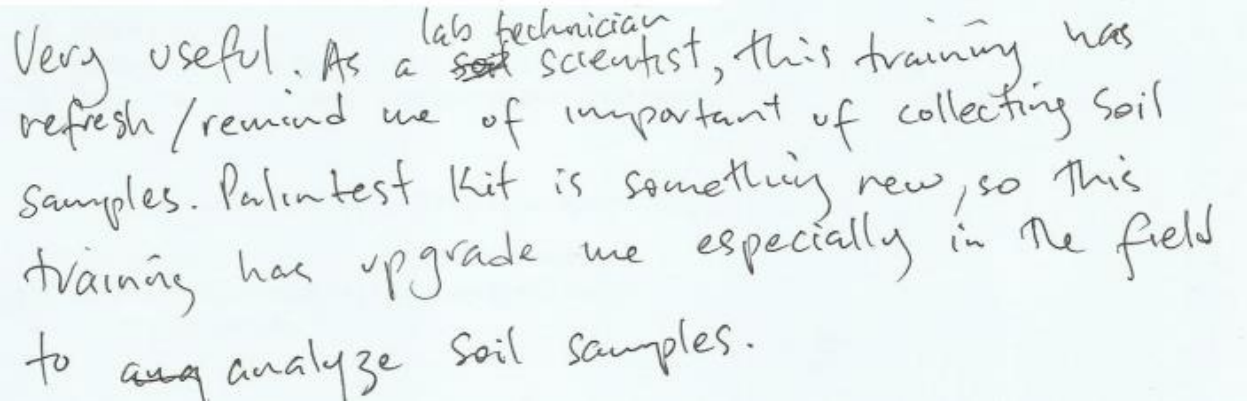
Mikaele Te'o	Male	Advisory Officer		MAF


Learn alot especially on field collecta of soil sample and using the soil or palintest. Its useful to understand the nutrients available and not available in the soil. It really helps ~~me~~ through my work as an extension to ~~to~~ assist farming of knowing and understand the situation on their land before planting.

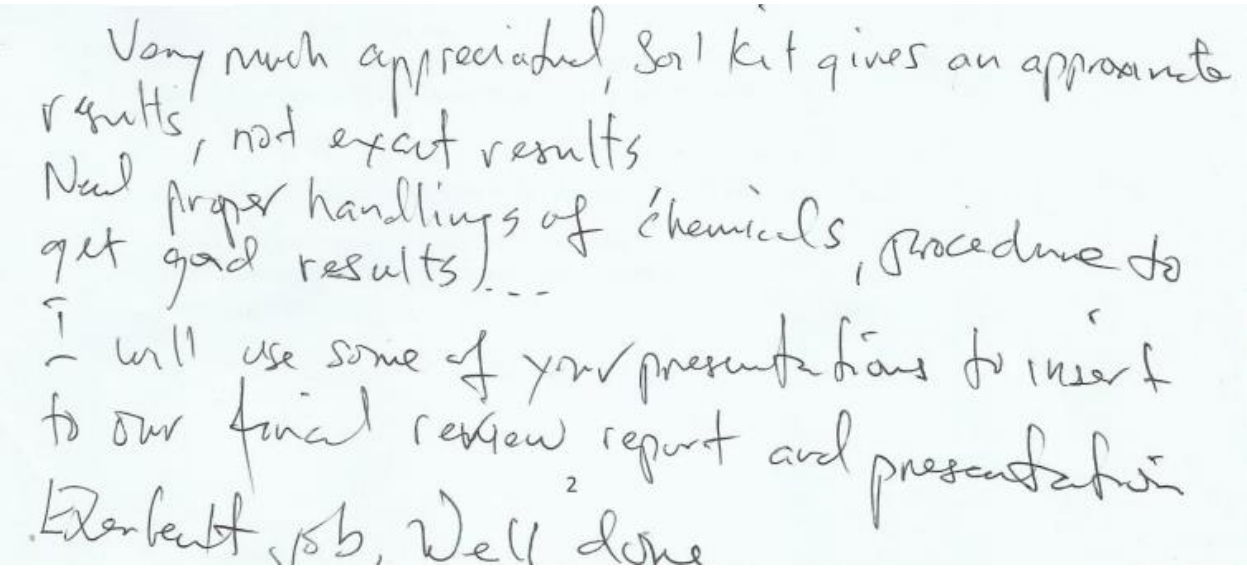
Jennifer Ah Ching	Female	Assistant Advisory Officer	MAF



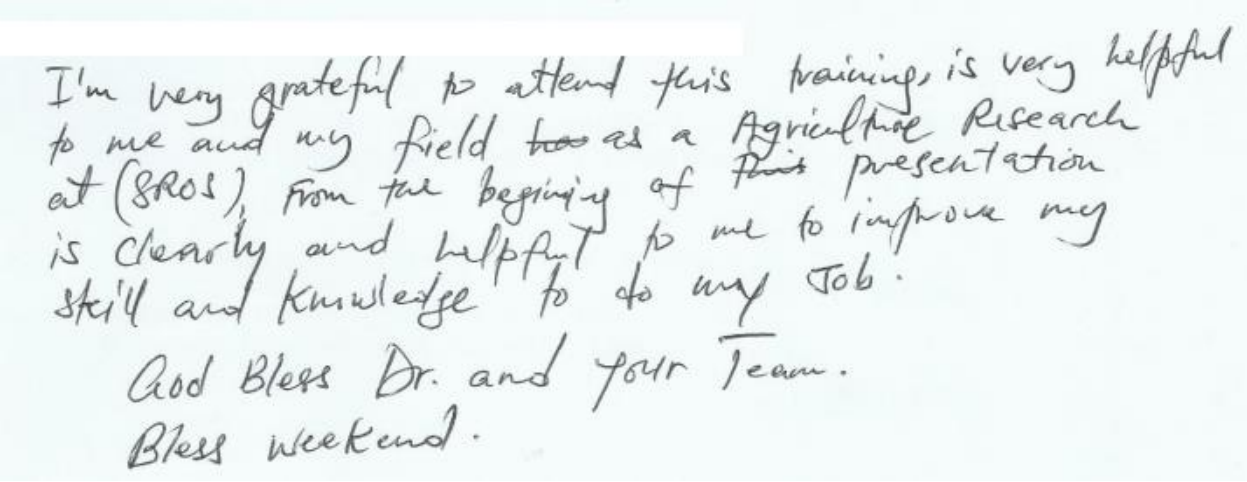
Philip Reti	Male	Senior Research Scientist	SROS



Olo Aleni Uelesi	Male	Senior Research Scientist	SROS



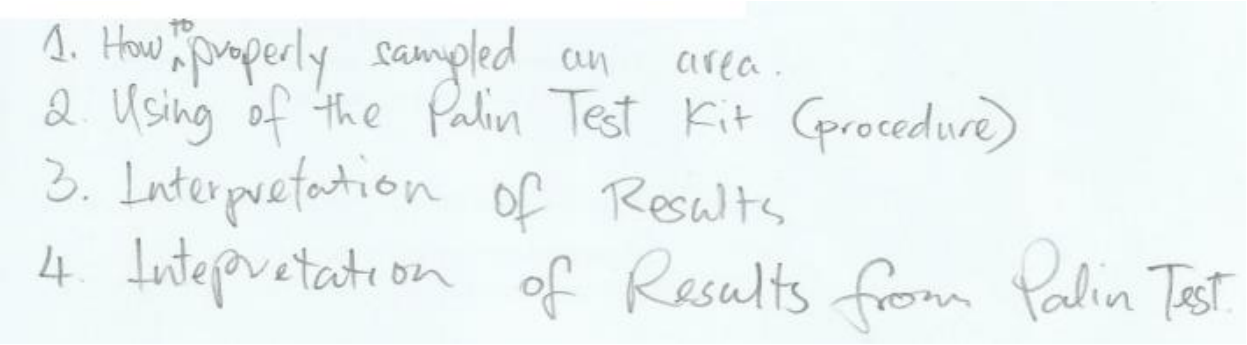
Helmy Sasulu	Female	Research Scientist Officer	SROS


I'm very grateful to attend this training, is very helpful to me and my field ~~too~~ as a Agriculture Research at (SROS), From the beginning of ~~this~~ presentation is clearly and helpful to me to improve my skill and knowledge to do my Job.

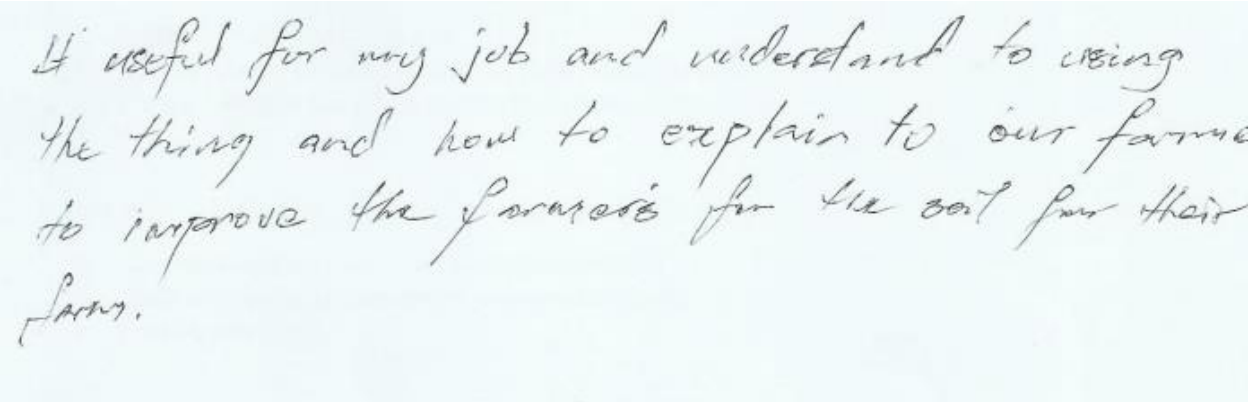
God Bless Dr. and your Team.

Bless weekend.

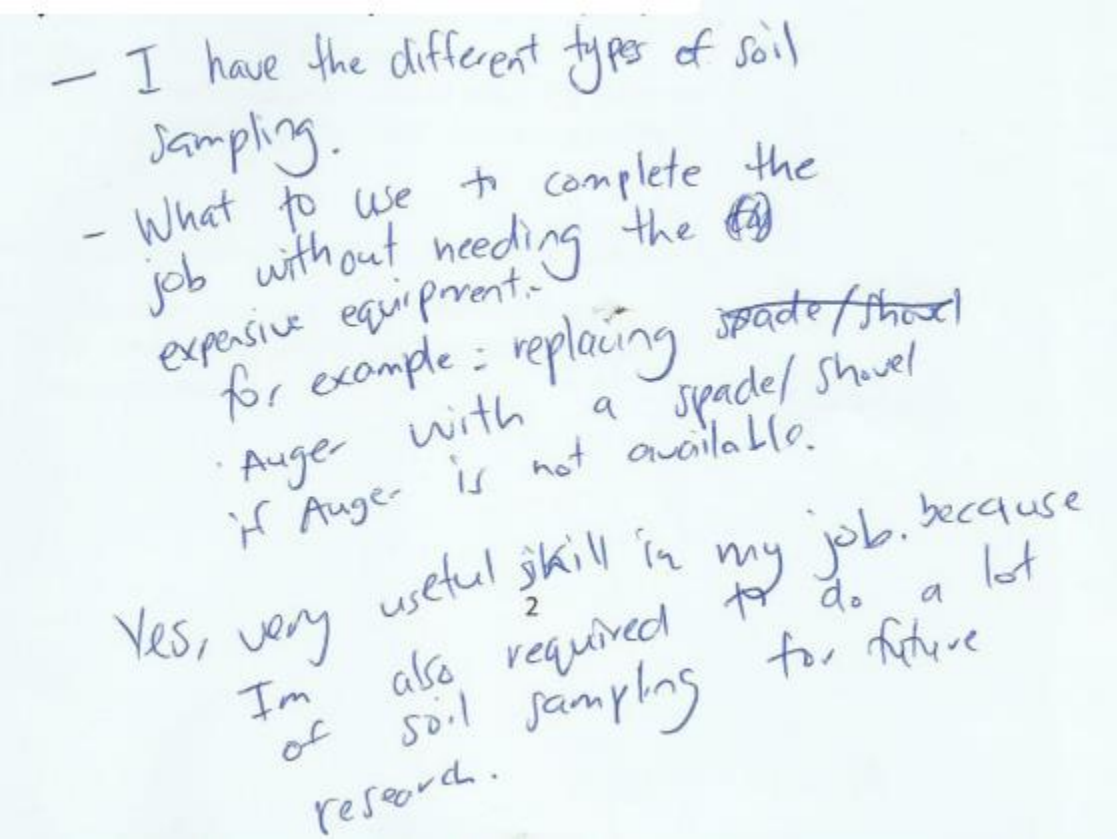
Dean Seuoti Male Technician – Soil Science USP


1. How to properly sampled an area.
2. Using of the Palin Test Kit (procedure)
3. Interpretation of Results
4. Intepretation of Results from Palin Test.

Samuelu Saulia Male Technician – Soil Science USP


It useful for my job and understand to using the thing and how to explain to our farmer to improve the farmers for the soil for their farm.

Michael Sefilino Male Technician USP



Appendix 5 – Article on the Field Day on Samoan Observer

Soil expertise key to farming growth

Training to enhance local scientists' skills and knowledge of the science of soil fertility was held last Friday with the aim of boosting agricultural productivity.

The University of the South Pacific (U.S.P.) in collaboration with the Pacific Community (S.P.C.) organised a day dedicated to improving local understanding of the science behind soil.

The event featured participants such as laboratory technicians, agriculture Advisors from Scientific Research Organization of Samoa (S.R.O.S.), Ministry of Agriculture and Fisheries (M.A.F.) and U.S.P.

The event was funded by S.P.C. but it is part of an Australian Centre for International Agricultural Research (A.C.I.A.R.) funded project titled: "Soil management in Pacific Islands: investigating nutrient cycling and development of the soils portal."

The project's lead organisation is the Commonwealth Scientific and Industrial Research Organisation (C.S.I.R.O.).

Part of the programme included hand to hand soil-sampling protocol including preparation of sampled soils, bagging and tagging demonstrations.

The participants also learned how to use the Palintest Kit for analyzing soil samples to determine soil nutrient content at the farmer's field and interpret Palintest kit results for formulation of fertilizer recommendation.

In an interview with the Samoa Observer, a Senior Lecturer from U.S.P., Dr. M. Abdul Kader said that the objective of the event is to demonstrate soil sampling procedure, preparation of soil samples, bagging and tagging.

"And to also analyse soils by using the Palintest kit and interpretation results," he said.

"We need updated soil data for Samoa and some Pacific islands, we want to update this data

"All over the world, not only Samoa, soil health is deteriorating because of high pressure, population pressure, so soil needs to be taken care of properly.

"Part of this programme is making them (participants) into soil doctors. This is a start and a trial programme."

One of the participants, a Senior Research Scientist from S.R.O.S., Olo Aleni Uelese said that this is one of the most significant programmes in Samoa is educating on the various types of soils.

"The soil is different around Samoa; it is not the same," Olo said.

"There are times when the quality of soil is good and it is evident through the plants grown but other times it is of bad quality when nothing grows.

"But this programme is important to bring S.R.O.S., M.A.F., and U.S.P. to further educate and enhance us in how to address or help the needs of our farmers."

He explained that they have faced problems in the past with sampling of soil because of different methods and bringing it to the labs but now

"There is new equipment that we will learn how to operate which we can test the soil out on the fields and try to help our farmers in terms of what issues they are facing.

The event concluded with a certificate presentation ceremony where participants each received one as recognition for their participation.

Researchers during the training programme. Photographer: Samoa Observer.

A senior Lecturer from U.S.P., Dr. M. Abdul Kader Photographer: Samoa Observer.

Source: Samoan Observer (p. 10), Monday, 1st November, 2011.
(Online article: https://www.samoaobserver.ws/category/samoa/93902)