

The Democratic Republic of Timor-Leste Ministry of Agriculture and Fisheries

<u>Seeds of Life</u> Fini ba Moris



End-of-Program Survey, 2016 Volume 2: Data Tables



Seeds of Life 3 End-of-Program Survey

Volume 2 Data Tables

Ministry of Agriculture and Fisheries Seeds of Life / Fini ba Moris

Dili, May 2016



This report summarizes the findings of the 2016 Seeds of Life End of Program Survey carried out by the Ministry of Agriculture and Fisheries/ Seeds of Life program, with the assistance of an External Consultant recruited by Seeds of Life.

Volume 1 presents and analyses the main results of the survey while Volume 2 lists all the data tables extracted from the survey: those interpreted in volume 1 and new tables that were not included in Volume 2.

Seeds of Life (Fini ba Moris) is a program within the Timor-Leste (East Timor) Ministry of Agriculture and Fisheries (MAF). The Governments of Timor-Leste and Australia collaboratively fund the program. Australian funding is through Australian Aid, Department of Foreign Affairs and Trade (DFAT), plus the Australian Centre for International Agricultural Research (ACIAR) and is managed by ACIAR. The Centre for Plant Genetics and Breeding (PGB) within the University of Western Australia (UWA) coordinates the Australian funded activities.

Cover photo

A woman farmer looks out over her maize crop and the valley below, sub-district Remexio, Aileu. Photo by Alva Lim, 2012

Index of tables

Table 1.	Sample per municipality and sample representativeness	1
Table 2.	Additional information on sampled sucos	2
Table 3.	Characteristics of the surveyed population	3
Table 4.	Number of HH members per age and gender in an "average HH"	3
Table 5.	Household member's involvement in agriculture per age and gender	4
Table 6.	Decision making in the household	4
Table 7.	Influence of the respondent's sex on the answers given about decision making	4
Table 8.	Decision making and women's involvement in agricultural work	5
Table 9.	Crops for which MAF has released improved varieties	6
Table 10.	Proportion of respondents among the total sample knowing MAF released varieties by memory and by name	6
Table 11.	Evolution of farmer's familiarity with MAF varieties	7
Table 12.	Source of information	7
Table 13.	Number of food crops plots cultivated per household	8
Table 14.	Assessments of farmers' land fertility	8
Table 15.	Crops grown between February 2015 and January 2016	9
Table 16.	Proportion of HHs cultivating maize, rice, peanut cassava and sweet potato at the time of the survey	9
Table 17.	Average area grown under maize, rice, peanut, cassava and sweet potato	10
Table 18.	Growing crops in intercropping	10
Table 19.	Growing crops on the more fertile plots	10
Table 20.	Production of main crops	11
Table 21.	Farmer's projections on what will be their harvests in 2016	11
Table 22.	Farmers' familiarity with the varieties they grow	13
Table 23.	Farmers who stopped growing an improved variety	13
Table 24.	Improved varieties adoption rates – National level	14
Table 25.	MAF varieties adoption rates – Regional level	14
Table 26.	MAF varieties adoption rates (% among crop growers)	15
Table 27.	Contamination of Sele, Noi Mutin and Nai	15
Table 28.	Proportion of adopters according to different factors	16
Table 29.	MAF varieties adoption rates – Program level	17

Table 30.	Sources of seed/cutting	18
Table 31.	Maize seed selection techniques	18
Table 32.	Seeds received but not planted	19
Table 33.	Reasons for wanting to grow improved varieties (% among variety adopters only)	19
Table 34.	Duration of adoption of improved varieties	20
Table 35.	Comparing the area grown during the survey and a year before	20
Table 36.	Growing a second cycle in 2015	20
Table 37.	Area grown with improved varieties	21
Table 38.	Growing improved varieties on the more fertile plots	21
Table 39.	Comparison of areas of MAF varieties and local varieties	22
Table 40.	Cropping system used for improved varieties	22
Table 41.	Stopping to grow other varieties since started growing improved varieties	5.22
Table 42.	Comparison of quantities harvested for MAF and non-MAF varieties	23
Table 43.	Farmers' projections on what will be their harvests in 2016	23
Table 44.	Use of the 2015 harvests, per adopter and non-adopter	24
Table 45.	Preference in selling harvest of improved varieties or local varieties	24
Table 46.	Perception on improved varieties productivity compared to local varieties	s.25
Table 47.	Farmers willing to grow again the improved varieties in the future	25
Table 48.	Area of improved variety planned to be grown	26
Table 49.	Planting again a local variety for the 2016-17 season	26
Table 50.	Proportion experiencing hunger according to different factors	27
Table 51.	Hungry season question: comparison between answers from main respondents and persons in charge of food preparation	28
Table 52.	Months of consumption of self-grown maize and rice: comparison between answers from main respondents and persons in charge of food preparation	30
Table 53.	Purchasing rice for HH consumption	30
Table 54.	Purchasing maize for HH consumption	30
Table 55.	Quantity of rice purchased according to different factors	31
Table 56.	Purchasing more or less rice now compared to 2011	31
Table 57.	Purchasing rice now vs. food production and area grown now compared to 2011	31
Table 58.	Origin of money used to buy rice	32
Table 59.	What do you consider being your main staple food and in 2011	32

Table 60.	Influence of gender of respondent on what is considered as the main staple food	32
Table 61	Difficulty to eat the main staple food in the past 12 months	33
Table 62	Proportion of HHs eating wild foods and when	34
Table 63	Why eating wild foods during these months	34
Table 64	Proportion of HHs using each coping strategy and r-CSI score	35
Table 65	Average r-CSI score according to different factors	35
Table 66	Gender of the HH members who apply each coping strategy	36
Table 67	Proportion of HHs within each category of FCS	36
Table 68.	Average FCS according to different factors	
Table 69.	Sources of mains staple food eaten during the last seven days	
Table 70.	Average proportion of food coming from own production according to answers given for the question " <i>What months were you able to eat</i> <i>your own foodcrops?</i> "	37
Table 71.	Comparing food production in 2011 and 2016	38
Table 72.	Respondents' perception on the impact of growing MAF varieties on HH food security	38
Table 73.	House size and construction material	39
Table 74.	Household possessions	39
Table 75.	Poverty likelihoods	40
Table 76.	Agricultural assets owned	40
Table 77.	Number of storage drums owned	40
Table 78.	Number of animals owned	40
Table 79.	Animals dying because of drought	41
Table 80.	PPI and agricultural assets indicator according to different factors	41
Table 81.	Self-assessment of households' economic situation	42
Table 82.	Comparing economic situation in 2011 and 2016	42
Table 83.	Various sources of income of interviewed HHs	42
Table 84.	Gender of person who takes care of small business	43
Table 85.	Origin of crops sold by households	43
Table 86.	Types of crops sold by households	43
Table 87.	Amount of money earned from selling crops	43
Table 88.	Proportion of money earned from selling crops produced by the HH among the total HH income	43
Table 89.	Farmers' awareness of the existence of CSPGs/CSPs	44

Table 90.	Proportion of respondents knowing about CSPG/CSP according to different factors	.44
Table 91.	Participation in groups	.44
Table 92.	Gender of the person in the HH who is a member of a CSPG or CSP	.45
Table 93.	Duration of membership in CSPG/CSP	.45
Table 94.	Varieties grown by the CSPG/CSP respondents are members of	.45
Table 95.	Receiving seeds from the CSPG/CSP	.45
Table 96.	Characteristics of CSPG members	.46
Table 97.	Being member of CSPGs/CSPs in the past only	.46

Index of figures

Figure 1.	Number of improved varieties respondents know by name or memory	6
Figure 2.	Comparison of area under foodcrop cultivated in 2011 and 2016	8
Figure 3.	Proportion of local and MAF varieties grown per crop	12
Figure 4.	Progress in adoption since 2011	14
Figure 5.	Adoption rate by region since 2013	15
Figure 6.	Proportion of adopters per number of improved varieties grown	16
Figure 7.	Adoption rate by length of presence of the program	17
Figure 8.	Foodstock difference between a first time adopter and a non-adopter	27
Figure 9.	Proportion of foodcrop farmers experiencing hunger	27
Figure 10.	Evolution of the proportion of adopting and non-adopting HHs who experienced hunger	28
Figure 11.	Consumption of self-grown crops by farmers (Feb 2015 – Jan 2016)	29

Note. The numbering of the sections in Volume 2 has been kept the same as in Volume 1, so that the reader can easily cross-check¹. Because of this, there may be a few sections that do not appear in Volume 2, since they did not have tables in them in Volume 1.

So, for example, the first section in this chapter is '1.2 Sampling methodology' because there was no table in '1.1 Background'.

It should also be noted that the table numbers in Volume 2 are not the same as in Volume 1, because there are extra tables in Volume 2.

1.2 Sampling methodology

Municipality	Numbers of households targeted	Number of households interviewed	Rural households ²	Number of sample sub- districts	Number of sample sucos
Aileu	35	35	7,382	2	3
Ainaro	46	46	9,959	3	4
Baucau	90	90	20,097	6	8
Bobonaro	73	73	16,058	3	6
Covalima	51	51	11,160	3	4
Dili	24	24	4,775	2	3
Ermera	89	89	19,729	5	7
Lautem	44	44	9,531	3	4
Liquica	55	55	11,934	3	5
Manatuto	34	34	7,215	2	3
Manufahi	38	39	8,006	2	3
Oecusse	57	57	12,475	3	5
Viqueque	64	64	14,109	3	5
Total	700	701	152,429	40	60
	Total for "rural" in T	imor-Leste	152,429	67	400
]	Percentage	0.5%	60%	15%

Table 1. Sample per municipality and sample representativeness

 $^{^1}$ The only exceptions to this are the two sections "6.5 Staple food" and "6.6 Consumption of wild foods" which do not appear in Volume 1.

² From the Preliminary Results of the 2015 Timor-Leste Population and Housing Census 2015.

Municipality	# of sampled aldeias that are easily accessible / total aldeias sampled ³	# of sampled sucos with CSPGs or CSP / total sucos sampled	# of sampled aldeias with CSPGs or CSPs / total aldeias sampled ⁴
Aileu	4 / 8	3 / 3	3/9
Ainaro	12 / 12	4 / 4	5/12
Baucau	12 / 23	7 / 8	11/20
Bobonaro	1/4	5 / 6	6/14
Covalima	11 / 12	4 / 4	9/12
Dili	NA	2/3	0/9
Ermera	12 / 12	5 / 7	6/21
Lautem	11 / 12	4/4	6/12
Liquica	11 / 15	5 / 5	11/13
Manatuto	5 / 7	3 / 3	6/7
Manufahi	3 / 9	3 / 3	2/9
Oecusse	5 / 8	5 / 5	11/112
Viqueque	8 / 14	5 / 5	7/12
Average all municipalities	95 / 136 70%	55 / 60 92%	83/162 51%

Table 2. Additional information on sampled sucos

³ No information available on accessibility of the aldeia for 13 out of 175 aldeias. ⁴ No information available on accessibility of the aldeia for 39 out of 175 aldeias.

2. Household demographic characteristics

2.1 Basic data on respondents and heads of household

Characteristics	2011	2013	2014	2016
Characteristics	(1799)	(672)	(702)	(700)
Gender of respondents ⁵				
Male respondents	63%	60%	55%	55%
Female respondents	33%	40%	45%	45%
Gender of head of households				
Male-headed households	92%	92%	87%	94%
Female-headed households	8%	8%	13%	6%
Age of head of household (age categories)				
• < 29	NA	18%	8%	6%
• 30-39	NA	21%	20%	20%
• 40-49	NA	23%	26%	27%
• 50-59	NA	23%	21%	20%
• 60+	NA	15%	25%	27%
Head of household marital status				
Married	NA	92%	NA	91%
• Single	NA	1%	NA	1%
• Widow	NA	6%	NA	8%
• Other	NA	1%	NA	1%

Table 3. Characteristics of the surveyed population

[Only 665 respondents of the EoPS knew the age of the HoH, other data was collected from 700 HHs]

2.2 Household composition

Table 4. Number of HH members per age and gender in an "average HH"

Age categories	Average number of members in a HH	Male members	Female members
Children from 0 to 5 years	1	0.5	0.5
Children from 6 to 14 years	1,8	1	0.8
Adults from 15 to 34 years	1,7	0.8	0.9
Adults from 35 to 54 years	1	0.5	0.5
Adults more than 55 years	0,8	0.4	0.4
Total – any age categories	6.3	3.2	3.1

⁵ For the End of Program Survey, it is the gender of the main respondent that is reported in this table. The secondary respondent was always a woman (192 households had a secondary respondent interviewed).

Age categories	Gender	% not involved	% involved part time	% involved full time
6-14 years old	Boys	64%	36%	
	Girls	65%	35%	
15-34 years old	Men	10%	62%	28%
	Women	10%	61%	29%
35-54 years old	Men	2%	23%	75%
	Women	1%	31%	68%
55+ years old	Men	9%	16%	75%
	Women	24%	19%	57%
	Men	28%	38%	34%
All age categories	Women	28%	41%	31%

Table 5. Household member's involvement in agriculture per age and gender

2.3 Gender in decision making

	Men	Women	Both	Not selling		
Q1 - Main decision maker about	farming act	ivities				
All respondents	23%	15%	62%			
Male respondents	26%	6%	68%			
Female respondents	19%	27%	55%			
Q2 - Main decision maker about	Q2 - Main decision maker about selling agricultural production					
All respondents	7%	23%	35%	36%		
Male respondents	8%	17%	38%	37%		
Female respondents	5%	31%	30%	34%		
Q3 - Main decision maker about use of the money from selling crops						
All respondents	3%	36%	26%	35%		
Male respondents	4%	32%	28%	36%		
Female respondents	1%	41%	24%	34%		

Table 6. Decision making in the household

Table 7. Influence of the respondent's sex on the answers given about decision making

	Men	Women	Both	Not selling	
Q1 - Main decision maker about farming					
Main respondent (189 men, 3 women)	21%	8%	71%		
Person who cooks (192 women)	19%	14%	68%		
Q2 - Main decision maker about selling agric	Q2 - Main decision maker about selling agricultural production				
Main respondent (189 men, 3 women)	7%	21%	40%	32%	
Person who cooks (192 women)	6%	22%	45%	26%	
Q3 - Main decision maker about use of the money from selling crops					
Main respondent (189 men, 3 women)	1%	39%	30%	31%	
Person who cooks (192 women)	1%	42%	31%	26%	

	Men	Women	Both	Not selling			
Q1 - Main decision maker about farming							
# of cases	160	106	431				
Proportion of women's time among the total agricultural labour in the HH	44%	62%	47%				
Q 2 - Main decision maker about selling agricultural production							
# of cases	# of cases 46 161 240 250						
Proportion of women's time among the total agricultural labour in the HH	42%	51%	49%	49%			
Q 3 - Main decision maker about use of the money from selling crops							
# of cases 19 248 183 248							
Proportion of women's time among the total agricultural labour in the HH	34%	50%	48%	49%			

Table 8. Decision making and women's involvement in agricultural work

3.1 Awareness of the existence of improved varieties released by MAF

Crops	2014	2016
Maize	93%	94%
Rice	41%	16%
Peanut	33%	21%
Cassava	42%	32%
Sweet potato	36%	26%
Other (teak, nuts, beans, fruit trees)	3%	6%
Don't know		3%
[467 HHs in the EoPS]		

Table 9. Crops for which MAF has released improved varieties

3.2 Knowing varieties by memory and by name

Table 10. Proportion of respondents among the total sample knowing MAF released varieties by memory and by name

Variety	Knowing by	Knowing by	Combined: knowing by
Solo	23%	15%	37%
Noi Mutin	200/	1570	250/
NOI MUUIII	20%	15%	35%
Nakroma	4%	7%	10%
Utamua	3%	6%	9%
Ai-luka	3%	7%	11%
Hohrae	3%	3%	7%
Mentioned another name	2%	NA	-
Nai	1%	1%	2%
Fictitious variety 1: "Soko"	NA	1%	-
Fictitious variety 2: "Santalum"	NA	0	-

[All proportions are calculated among 700 HHs]



Figure 1. Number of improved varieties respondents know by name or memory

[All proportions are calculated among 700 HHs]

Variety	2014	2016
Sele	15%	25%
Noi-Mutin	13%	22%
Nai	0.1%	1%
Nakroma	32%	13%
Utamua	10%	7%
Ai-luka	5%	10%
Hohrae	3%	4%

Table 11. Evolution of farmer's familiarity with MAF varieties

[484, 540, 685, 87, 204, 604 and 376 crop growers who do not grow respectively Sele, Noi Mutin, Nai, Nakroma, Utamua, Ai-luka or Hohrae, answered this question in 2016]

Source of information	2014	2016
MAF	43%	51%
Local leaders	15%	20%
Relative/neighbour	25%	17%
NGO	17%	15%
Brochure/calendar	11%	15%
Other	2%	10%
Media (TV, radio)	19%	7%

Table 12. Source of information

[216 farmers who heard of at least 1 variety answered this question in the EoPS]

4.1 Area cultivated

4.1.1 Land size and number of plots

	One	Two	Three	Four	Five
20116	70%	28%	2%	0.8%	0.1%
2013	51%	35%	8%	4.5%	1.5%
2016	34%	46%	15%	3%	2%

Table 13. Number of food crops plots cultivated per household

[Answers from all 700 respondents in the 2016 survey]

	Total sample	% of foodcrop plots that were listed as fertile plots	% of plantations that were listed as fertile plots
Some plots are more fertile than others	27%	62%	26%
All plots are similarly fertile	54%		
Don't know	20%		

Table 14. Assessments of farmers' land fertility

[Answers from all 700 EoPS respondents and from59 respondents for the 2nd and 3rd columns]



[690 respondents answered this question]

Figure 2. Comparison of area under foodcrop cultivated in 2011 and 2016

⁶ In the figures and tables of this report, "2011" refers to data collected during SoL's Baseline Survey conducted in 2011, "2013" refers to data collected in SoL's Mid-Term-Survey conducted in 2013, "2014" refers to data collected in SoL's Adoption-Survey conducted in 2014 and "2016" refers to data collected in this survey.

4.2 **Crops and varieties grown**

4.2.1 Diversity of crops grown

Сгор	% among 700 HHs
Maize	99%
Cassava	92%
Fruits: banana, lemon, mango, papaya, honey dew, etc.	74%
Vegetables: green leafy vegetables, carrots, pumpkin, etc.	69%
Beans, peas and other nuts: string beans, green peas, etc.	67%
Sweet potato	66%
Other root crops: taro, yam, arrowroot, etc.	50%
Coconut	43%
Peanut	34%
Coffee	31%
Rice: both wet and dry land	22%
Other: mainly plantations such as candlenut, teak, etc.	15%
Other cereals: sorghum, millet, etc.	1%

Table 15. Crops grown between February 2015 and January 2016

Table 16. Proportion of HHs cultivating maize, rice, peanut cassava and sweet potato at the time of the survey

Year	Maize	Rice	Peanut	Cassava	Sweet potato
2010 (Census)	88%	39%	NA	81%	NA
2013	95%	37%	29%	86%	60%
2014	99%	31%	35%	91%	76%
2016	99%	(1) 14%(2) 20%⁷	31%	91%	63%

[Answers collected from all 700 respondents of the EoPS]

⁷ The first result is the proportion of rice growers interviewed in February-March 2016 while the second result is the revised proportion of rice growers after 51 HHs had been revisited in April-May 2016.

4.2.2 Area of five main foodcrops

Year	Maize	Rice	Peanut	Cassava	Sweet potato
2013	0.58ha	1.86ha	0.28ha	0.70ha	0.35ha
2016	0.47ha	(1) 0.69ha (2) 0.82ha ⁸	0.23ha	0.40ha	0.36ha

Table 17. Average area grown under maize, rice, peanut, cassava and sweet potato

[Answers collected from all 691, 95/138, 217, 636, 444 respondents growing respectively maize, rice, peanuts, cassava and sweet potato in the EoPS]

Table 18. Growing crops in intercropping

	Maize	Peanut	Cassava	Sweet potato
Proportion growing in intercropping among farmers:				
- growing an improved variety of that crop	90%	39%	88%	80%
- not growing an improved variety of that crop	98%	43%	98%	99%
		-		

[Answers collected from all 691, 95, 217, 636, 444 respondents growing respectively maize, rice, peanuts, cassava and sweet potato in the EoPS]

Types of plots where crops are grown	Maize	Rice	Peanut	Cassava	Sweet potato
Crop grown on the more fertile plots	6%	15%	23%	9%	13%
Crop grown on any kind of plot: the more fertile and the less fertile ones	22%	6%	2%	17%	10%
Crop grown on the less fertile plots	4%	7%	9%	7%	6%
No difference between the fertility of the different foodcrop plots	67%	72%	66%	67%	71%

Table 19. Growing crops on the more fertile plots

[Answers collected from 375, 345, 251, 128, 68 respondents growing respectively maize, rice, peanuts, cassava and sweet potato in the EoPS]

⁸ The first result is the average rice area grown among the 95 rice producers interviewed in February-March 2016. The second result is the revised area that includes the 43 new rice producers revisited in April-May 2016.

4.2.3 Production of five main food crops

		Crop	Crop production (% of respondents growing the crop)						rest	vest	
Crop		No harvest	Less than 25 kg	25 to < 50 kg	50 to < 100 kg	100 to < 200 kg	200 to < 500 kg	500 to < 1,000 kg	More than 1000 kg	Average harv (kg)	Maximum har (kg)
	2010-11	0.4%	9%	12%	19%	21%	24%	10%	5%	287	6,300
Maize	2012-13	4%	13%	8%	15%	19%	29%	9.5%	4%	271	3,960
	2014-15	3%	12%	12%	18%	23%	23%	6%	3%	220	2,475
	2010-11	0.4%	1%	6%	10%	16%	26%	18%	22%	641	8,000
Rice	2012-13	39%	1%	2%	4%	4.5%	12%	14%	23%	651	5,600
	2014-15	3%	2%	3%	7%	12%	12%	22%	39%	970	4,658
	2010-11	1%	26%	34%	23%	10%	4%	2%	1%	75	2,660
Peanut	2012-13	13%	35%	24%	16%	10%	2%			43	242
	2014-15	16%	34%	21%	17%	6%	3%	1%	3%	110	5,500
	2010-11	1%	2%	0.9%	18%	23%	34%	14%	8%	370	5,360
Cassava	2012-13	77%	3%	2%	3%	4%	6%	4%	2%	115	9,700
	2014-15	58%	1%	2%	5%	17%	11%	4%	2%	118	1,500
с ,	2010-11	1%	4%	24%	27%	25%	15%	3%	1%	149	3,000
Sweet	2012-13	71%	5%	5%	5%	6%	5%	2%	1%	70	1,976
polato	2014-15	54%	11%	5%	14%	16%				42	190

Table 20. Production of main crops

[Answers from crop growers: maize 658, rice 153, peanut 237, cassava 83 and sweet potato 37]

Table 21. Farmer's projections on what will	be their harvests in 2016
---	---------------------------

Crop	Will produce less this year	Will produce as much this year	Will produce more this year	Don't know
Maize	39%	14%	16%	32%
Rice	34%	13%	14%	39%
Peanut	41%	14%	15%	31%
Cassava	25%	19%	17%	39%
Sweet potato	28%	33%		39%

[Answers from crop growers: maize 668, rice 92, peanut 180, cassava 36 and sweet potato 18]



4.2.4 Diversity of varieties grown

Variety	(1) Proportion of variety adopters who didn't mention the MAF variety when asked which varieties they grow	(2) Proportion of variety adopters who didn't know the MAF variety in the section on familiarity
Sele	14%	33%
Noi Mutin	10%	22%
Nai	50%	75%
Nakroma	0	13%
Utamua	15%	54%
Ai-luka	50%	69%
Hohrae	31%	53%

Table 22. Farmers' familiarity with the varieties they grow

[Answers from respondents growing Sele (207), Noi Mutin (151), Nai (4), Nakroma (8), Utamua (13), Ai-luka (32), Hohrae (45)]

Table 22 presents two different comparisons which reveal the incoherencies in farmers' answers regarding the varieties they grow:

- (1) A comparison between what varieties farmers said they grow and what the enumerators actually identified as being grown after having carefully cross checked several information and observed crop/harvest if possible.⁹
- (2) A comparison between the varieties farmers actually grow and the varieties they earlier in the interview said they knew about (either by memory or name).¹⁰

	Number of farmers who	Reasons for not growing the variety anymore (# of cases):							
Variety	stopped growing an improved variety by the time of the survey	No more seeds (consumed all harvest)	Last crop failed (spoiled by animal/rain/ wind)	Harvest spoiled by weevils	No clients to buy my harvest	Other			
Sele	33 cases	9	7	11	1	3			
Noi Mutin	19 cases	5	5	6		1			
Nai	1 case								
Nakroma	2 cases	2							
Utamua	3 cases	2			1				
Ai-luka	3 cases		3						
Hohrae	1 case		1						

Table 23. Farmers who stopped growing an improved variety

[Answers collected from respondents knowing the name of the variety but not growing it at the time of the EoPS: Sele (110), Noi Mutin (114), Nai (13), Nakroma (11), Utamua (12), Ai-luka (51), and Hohrae (12)]

⁹ For example for Sele, 14% of the Sele adopters did not say they were growing Sele when asked which maize varieties they grew.

¹⁰ For example for Sele, 33% of Sele adopters did not recall the variety Sele in the section on familiarity (recall by memory or by name).

5.1 Adoption rates

5.1.1 Adoption rates combined

Year	# of crop growers	# of improved variety adopters	% of improved variety adopters	% of male headed HHs adopters	% of female headed HHs adopters
2011	1,510	270	17.9%	17.9%	17.2%
2013	672	165	24.6%	25.4%	14.3%
2014	702	228	32.5%	31.8%	37.4%
2016	700	339	48.4%	48.2%	51.1%

Table 24. Improved	varieties adoption rates -	National level
1	1	

[Answers from all 700 respondents in the EoPS]



Figure 4. Progress in adoption since 2011

Region	Year	# of crop growers	# of improved variety adopters	% of improved variety adopters
	2011	827	100	12%
West	2013	310	57	18%
Oecusse Bobonaro	2014	324	80	25%
	2016	324	126	39%
	2011	378	74	20%
Centre	2013	133	34	26%
Manufahi, Aileu, Ainaro, Dili	2014	137	53	39%
	2016	144	90	63%
	2011 ¹¹	305	96	31%
East	2013	229	74	32%
Manatuto	2014	241	95	39%
	2016	232	123	53%

Table 25. MAF varieties adoption rates – Regional level

[Answers from all 700 respondents in the EoPS]

¹¹Without Viqueque and Lautem



Figure 5. Adoption rate by region since 2013

5.1.2 Adoption rates per variety

Table 20. MAF valienes auoption rates (% anong crop growers	Table 26. N	MAF varieties	adoption rat	tes (% among	g crop growers
--	-------------	---------------	--------------	--------------	----------------

Variety	2011	2013	2014	2016
Sele	13%	15%	20%	30%
Noi Mutin	-	2%	10%	22%
Nai	-	-	0.3%	0.6%
Nakroma	11%	15%	14%	8% 21% ¹²
Utamua	16%	11%	12%	6%
Ai-luka	3%	3%	5%	5%
Hohrae	7%	7%	9%	10%

[Percentages calculated among 691, 95/138, 217, 636, and 444 farmers growing respectively maize, rice, peanuts, cassava and sweet potato in the EoPS]

Table 27. Contamination of Sele, Noi Mutin and Nai

Variates	All households		Among HHs for which cobs or kernels were observed by enumerators		
variety	# of	% of HHs with	# of	% of HHs with contaminated cron	
	cases	contaminated crop	cases	70 of fifts with containinated crop	
Sele	128	27%	82	38%	
Noi Mutin	109	31%	54	50%	
Nai	3	100%	3	100%	

Table 27 summarizes enumerators' answers to the question "*Is Sele / Noi Mutin / Nai contaminated?*". 'Contaminated' refers to the harvested cobs no longer having the characteristics of the 'pure' improved varieties, most likely due to cross-pollination with local or traditional varieties. The first data presents all available answers and the second data presents only answers among HHs for which cobs or kernels were observed by enumerators (with the assumption that these answers are more reliable).

¹² The 8% is the proportion of Nakroma growers as of February-March 2016, while the 21% is the revised proportion of Nakroma growers after 51 HHs had been revisited in April-May 2016.

5.1.3 Adoption of multiple varieties



[Percentages among the total 165, 228 and 339 adopters of the 2013, 2014 and 2016 surveys respectively] Figure 6. Proportion of adopters per number of improved varieties grown

5.1.4 Variables correlated to adoption

Factors correlated to adoption		# of cases	% of adopters
Length of presence of the SoL Program			
More than eight years in Baucau, Manufa	219	66%	
Less than eight years in	481	40%	
CSPG or CSP in the suco of the respondent			
There is a C	SPG/CSP in the suco	644	50%
There is no C	SPG/CSP in the suco	56	27%
IFAD drums: 0)wns an IFAD drum	115	69%
Does no	t own an IFAD drum	585	44%
Total # of HH members working in agriculture:	0-2 members	260	45%
	2.5-4 members	353	47%
4	.5 to more members	87	63%

Table 28. Proportion of adopters according to different factors

Program level	Year	# of crop growers	<pre># of improved variety adopters</pre>	% of improved variety adopters
	2011	539	161	30%
Districts of early SoL2	2013	202	72	36%
Liquica	2014	210	88	42%
Liquita	2016	219	137	63%
	2011	971	109	11%
SoL3 districts	2013	470	93	20%
Other nine districts	2014	492	140	29%
	2016	481	187	39%

Table 29. MAF varieties adoption rates – Program level



Figure 7. Adoption rate by length of presence of the program

5.2 Characteristics of adopters

5.2.1 Source of improved varieties seeds and cuttings

Course		Sele		N	loi Mut	in	Nai		Nakroma		
Source	2013	2014	2016	2013	2014	2016	2014	2016	2013	2014	2016
Given for free by an NGO	15%	26%	5%	14%	28%	5%			18%	13%	
Given for free by the Government	52%	43%	39%	44%	52%	50%	100%	25%	61%	50%	
Given for free by CSPG	NA	1%	2%	NA	2%	3%			NA	3%	
Own seed, saved from a previous harvest	15%	23%	56%	14%	12%	43%		50%	5%	30%	63%
Bought in market	10%	6%	2%	14%	2%	1%		25%			13%
Bought from CSPG/CSP	NA	1%	0.5%	NA					NA		
From a relative / neighbour / friend (bought or free)	7%	5%	5%	14%	14%	6%			13%	7%	38%
Other	1%	1%			2%				3%	17%	
Bought in market Bought from CSPG/CSP From a relative / neighbour / friend (bought or free) Other	10% NA 7% 1%	6% 1% 5% 1%	2% 0.5% 5%	14% NA 14%	2% 14% 2%	1% 6%		25%	NA 13% 3%	7% 17%	38%

Table 30. Sources of seed/cutting

Course	Utamua			Ai-luka				Hohrae		
Source	2013	2014	2016	2013	2014	2016	2013	2014	2016	
Given for free by an NGO	18%	14%	8%	7%	12%	6%		28%	7%	
Given for free by the Government	41%	34%	39%	60%	27%	9%	59%	32%	20%	
Given for free by CSPG	NA	7%		NA	3%	3%	NA		7%	
Own seed, saved from a previous harvest	32%	17%	46%	7%	18%	69%	15%	28%	42%	
Bought in market	9%	24%	8%				4%	4%	2%	
Bought from CSPG/SP	NA			NA			NA			
From a relative / neighbour / friend (bought or free)		14%	8%	13%	12%	9%	22%	22%	27%	
Given by CCT	NA	NA		NA	30%		NA			
Other		3%		13%	3%	3%		4%		

[206, 145, 4, 13, 8, 32 and 45 farmers planting Sele, Noi Mutin, Nai, Nakroma, Utamua, Ai-luka and Hohrae answered this question in the EoPS]

Seed selection technique	2011	2016
Select kernels that are still in good condition (not eaten by weevils, etc.)	610/	93%
No specific techniques - just take whatever seeds are available (left from last cycle, received for free, etc.)	61%	3%
Select seeds from a specific section of the cob	10%	53%
Select big cobs after they are harvested	49%	34%
Select specific plants from the standing crop for seeds	20%	3%
[As seen as the start of farmer all (0.1 median second softher E a DC]		

Table 31. Maize seed selection techniques

[Answers collected from all 691 maize growers of the EoPS]

Question	Answer
Proportion of HHs having recently received seeds but not having planted these	3% (24 HHs)
Varieties received and not planted	Sele: 12 HHs
	Noi Mutin: 7 HHs
	Nakroma: 1 HH
	Non-MAF varieties: 5 HHs
Reason for not planting the seeds	Distribution was late: 9 HHs
	Don't know: 5 HHs
	No more free land to plant seeds: 4 HHs
	I don't like the variety: 1HH

Table 32. Seeds received but not planted

Table 33. Reasons for wanting to grow improved varieties (% among variety adopters only)

Variety	Year	Received seed for free	Saw other farmers growing it	Heard about it from other farmers	Heard about it on radio or TV	Was recommended by the SEO	Other reason	I don't know
Cala	2014	66%	18%	17%	1%	11%	32%	1%
Sele	2016	76%	15%	14%	2%	37%	14%	3%
N : M+:	2014	73%	17%	10%		16%	30%	1%
Noi-Mutin	2016	71%	16%	12%	1%	42%	13%	1%
NT 1	2014	45%	42%	13%		6%	39%	3%
макгота	2016	13%	25%	13%		25%	50%	
11	2014	45%	21%	7%		14%	45%	3%
Utamua	2016	77%	31%	0%		23%		
	2014	76%	12%	15%	3%	15%	12%	
Ai-luka	2016	72%	34%	9%		25%	16%	
TT 1	2014	55%	20%	10%		12%	29%	6%
Honrae	2016	56%	40%	22%		33%	20%	

[Percentages among 206 Sele and 145 Noi Mutin growers, 8 Nakroma growers, 13 Utamua growers, 32 Ai-luka growers and 45 Hohrae growers]

5.2.2 Growing improved varieties during the previous years

Variety	% of adopte improved varie	Average d ador	uration of otion	Maximum duration		
	2014 2016		2014	2016	2014	2016
Sele	58%	33%	1.9 years	2.3 years	7 years	13 years
Noi-Mutin	80%	54%	1.4 years	1.7 years	6 years	8 years
Nakroma	48%	38%	2 years	4 years	7 years	10 years
Utamua	52%	54%	1.9 years	2.2 years	7 years	6 years
Ai-luka	73%	34%	1.6 years	1.9 years	6 years	5 years
Hohrae	51%	44%	2.1 years	2 years	7 years	7 years

Table 34. Duration of adoption of improved varieties

[202, 142, 8, 13, 31 and 45 farmers planting Sele, Noi Mutin, Nakroma, Utamua, Ai-luka and Hohrae answered these questions in the EoPS]

Table 35. Comparing the area grown during the survey and a year before

Variaty	Less	s now	Same a	s before	More now		
variety	2014	2016	2014	2016	2014	2016	
Sele	13%	19%	65%	55%	22%	26%	
Noi-Mutin		15%	74%	57%	26%	28%	
Nakroma		40%	62%	60%	38%		
Utamua	7%	20%	86%	60%	7%	20%	
Ai-luka		15%	60%	45%	40%	40%	
Hohrae	7%	23%	56%	54%	37%	23%	

[129, 60, 5, 5, 20 and 22 farmers planting Sele, Noi Mutin, Nakroma, Utamua, Ai-luka and Hohrae the year before the EoPS answered this question]

Variety	Proportion of variety adopters who grew a second cycle in 2015	Smaller area during the 2 nd cycle	Area of 1 st cycle = area of 2 nd cycle	Larger area during the 2 nd cycle
Sele	20%	44%	48%	7%
Noi-Mutin	19%	40%	53%	7%
Nakroma	2 out of 5 farmers	2		
Utamua	1 out of 6 farmers	1		
Hohrae	22%	60%	40%	

Table 36. Growing a second cycle in 2015

[134, 64, 5, 6 and 23 farmers planting Sele, Noi Mutin, Nakroma, Utamua and Hohrae the year before the EoPS answered the question about growing a second cycle]

5.2.3 Area grown under improved varieties

Variety	Average area grown (ha)			Proportion of under the	Maximum area grown (ha)			
	2013	2014	2016	2013	2016	2013	2014	2016
Sele	0.5	0.3	0.3	0.00/	760/	2.0	4.0	1.5
Noi-Mutin	0.8	0.3	0.4	88%	76%	2.7	1.8	3.5
Nakroma ¹³	0.8	0.4	(1) 0.8 (2) 1.1	43%	(1) 82% (2) 91%	4.0	2.2	(1) 2.0 (2) 4.0
Utamua	0.3	0.1	0.2	94%	86%	1.6	0.9	1.0
Ai-luka	0.6	0.2	0.3	86%	67%	2.0	0.7	1.7
Hohrae	0.3	0.1	0.2	86%	78%	2.0	0.9	2.0

Table 37. Area grown with improved varieties

[207, 149, 8/29, 13 32 and 45 farmers planting Sele, Noi Mutin, Nakroma, Utamua, Ai-luka and Hohrae respectively were included in the above calculations for the EoPS]

Types of plots where improved varieties are grown	Sele, Noi Mutin, Nai	Nakroma	Utamua	Ai-luka	Hohrae
Variety grown on the more fertile plots	8%	14%	33%	15%	27%
Variety grown on any kind of plot: the more fertile and the less fertile ones	10%	72%	67%	11%	
Variety grown on the less fertile plots	6%	14%		4%	5%
No difference between the fertility of the different foodcrop plots	76%			70%	68%

Table 38. Growing improved varieties on the more fertile plots

[Answers collected from 271, 7, 12, 27, 41 respondents growing respectively improved maize varieties, Nakroma, Utamua, Ai-luka and Hohrae in the EoPS]

Table 38 shows where adopters chose to grow their improved varieties: on the plots they earlier in the interview specified were more fertile, or on the plots they specified were less fertile. Note that in many cases farmers said all their plots were similar in terms of soil fertility (last line).

¹³ For 2016, two results are given: the first figure is the result among Nakroma growers met in February-March 2016, while the second figure is the revised results among the Nakroma growers revisited in April-May 2016.

Area of improved varieties versus area of local varieties

Variety	Proportion of variety adopters also growing non-MAF varieties		Comparing areas							
			MAF va	MAF var. < local		MAF var. = local		MAF var. > local		
	2014	2016	2014	2016	2014	2016	2014	2016		
Sele	58%	63%	28%	54%	39%	24%	33%	23%		
Noi-Mutin	51%	64%	29%	47%	31%	22%	37%	31%		
Nakroma	16%	38%	14%		71%	33%	14%	67%		
Utamua	41%	39%	25%	40%	67%	60%	8%			
Ai-luka	82%	94%	7%	68%	52%	24%	41%	8%		
Hohrae	50%	69%	12%	87%	52%	13%	36%			

Table 39. Comparison of areas of MAF varieties and local varieties

[115, 85, 3, 5, 25 and 24 Sele, Noi Mutin, Nakroma, Utamua, Ai-luka, and Hohrae adopters respectively grew also a non-MAF variety and answered the question on comparing area of MAF and non-MAF varieties]

Cropping system of improved varieties

		11	0 5		1		
Variety	Mono-c	ropping	Intercr	opping	Growing on the same plot as another variety of the same crop ¹⁴		
	2014	2016	2014	2016	2014	2016	
Sele	18%	1004	82%	0.004	89%	51%	
Noi-Mutin	15%	10%	85%		71%	57%	
Utamua	34%	61%	66%	39%	41%	39%	
Ai-luka	6%	12%	94%	88%	85%	81%	
Hohrae	19%	20%	81%	80%	59%	56%	

Table 40. Cropping system used for improved varieties

[207, 13, 32 and 45 variety adopters answered this question in the EoPS]

Table 41. Stopping to grow other varieties since started growing improved varieties			1 .	
Table 11. Stopping to grow other varieties since started growing improved varieties	Table 41 Stonning to g	cow other varieties	since started growing	o improved varieties
	Table 11. Stopping to g	ow other varieties	Since Started grown	ig improved varieties

Variety	# of cases	Proportion who stopped growing another variety
Sele, Noi Mutin, Nai	167	35%
Nakroma	5	60%
Utamua	6	17%
Ai-luka	21	19%
Hohrae	23	44%

Table 41 presents farmers' answers to the question "*Since the first time you started growing the MAF variety, have you stopped growing some other varieties of that same crop?*" the objective being to assess if the introduction of an improved variety slowly replaces the use of local varieties.

¹⁴ If some adopters mixed different varieties on some plots and not on other plots, the HH was overall counted as a HH mixing different varieties. However, this situation happened very few times only.

5.2.4 Harvest of the MAF varieties

Variety	MAF var	. < local	MAF va	r. = local	MAF var. > local		
variety	2014	2016	2014	2016	2014	2016	
Sele	32%	200/	22%	200/	46%	220/	
Noi-Mutin	39%	39%	21%	29%	40%	52%	
Nakroma	14%		29%	50%	57%	50%	
Utamua	20%	50%	30%	50%	50%		
Ai-luka	15%	50%	39%	14%	46%	36%	
Hohrae	22%	50%	56%	31%	22%	19%	

Table 42. Comparison of quantities harvested for MAF and non-MAF varieties

[93, 2, 4, 14 and 16 variety adopters growing respectively Sele, Noi Mutin, Nakroma, Utamua, Ailuka and Hohrae answered this question]

Table 43. Farmers' projections on w	what will be their harvests in 2016
-------------------------------------	-------------------------------------

Crop	Varieties grown last year and this year	# of cases	Will produce less this year	Will produce as much this year	Will produce more this year	Don't know
	Grew a maize MAF variety last year and this year	172	38%	12%	15%	36%
Maize	Grew a maize MAF variety this year only	115	23%	17%	18%	43%
	Did not grow a maize variety last year nor this year	374	45%	13%	16%	26%
	Grew a maize MAF variety last year and this year	6	17%		50%	33%
Cassava	Did not grew a maize variety last year nor this year	30	27%	23%	10%	40%

Table 43 presents farmers' answers to the question "*Do you think you will be able to produce the same quantity of maize/rice this year?*" which was asked just after having collected data on quantities of maize and rice harvested for the 2014-15 season. Data is shown according to the types of varieties that were grown in 2014-15 and in 2015-16 in order to see if growing improved varieties influences farmers' perceptions on their upcoming harvest.

Use of the harvest

Crop	Varieties grown	# of cases	Proportion still in stock	Proportion consumed	Proportion sold
	Growing Sele/Noi Mutin/ Nai last year	172	24%	49%	6%
Maize	Not growing Sele/Noi Mutin/Nai last year	489	23%	55%	7%
	All cases	# of cases Proportion still in stock Proportion consumed Proportion sold 'ear 172 24% 49% 6% st year 489 23% 55% 7% 661 23% 54% 7% 5 66% 30% 32% 87 18% 74% 4% 92 21% 72% 6% 6 3% 43% 50% 174 11% 61% 15% 180 11% 60% 6% 20 NA 48% 14% 569 NA 61% 6% 25 NA 45% 18% 399 NA 65% 5%	7%		
	Growing Nakroma last year	# of cases Proportion still in stock Proportion consumed Prop still stock 172 24% 49% 6 r 489 23% 55% 7 661 23% 54% 7 5 66% 30% 32 87 18% 74% 4 92 21% 72% 6 6 3% 43% 50 174 11% 61% 15 180 11% 60% 16 20 NA 48% 14 569 NA 61% 6 25 NA 45% 18 399 NA 65% 5 424 NA 63% 6	32%		
Rice	Not growing Nakroma last year	87	18%	74%	4%
	All cases	92	21%	72%	6%
	Growing Utamua last year	6	3%	43%	50%
Peanut	Not growing Utamua last year	174	11%	61%	15%
	All cases	180	11%	60%	16%
	Growing Ai-luka last year	20	NA	48%	14%
Cassava	Not growing Ai-luka last year	569	casesstill in stockconsumed17224%49%48923%55%66123%54%566%30%8718%74%9221%72%63%43%17411%61%18011%60%20NA48%569NA61%589NA60%25NA45%399NA63%	6%	
	All cases	589	NA	60%	6%
	Growing Hohrae last year	25	NA	45%	18%
Sweet	Not growing Hohrae last year	399	NA	65%	5%
ροιαιο	All cases	424	NA	63%	6%

Table 44. Use of the 2015 harvests, per adopter and non-adopter

Table 45. Preference in selling harvest of improved varieties or local varieties

Variety	# of cases	Sold only the MAF varieties	Sold MAF and local varieties	Sold only the local varieties
Sele / Noi Mutin / Nai	15	8	6	1
Nakroma	1		1	
Utamua	4		3	1
Ai-luka	4		3	1
Hohrae	6	2	4	

5.2.5 Productivity of the MAF varieties

Variety	Decrease			Same			Increase			
variety	2011	2013	2016	2011	2013	2016	2011	2013	2016	
Sele	2%	3%	6%	18%	4%	19%	80%	93%	75%	
Noi-Mutin	-	7%		-		19%	-	93%	81%	
Nakroma		5%	25%	7%	16%		93%	79%	75%	
Utamua	4%	14%	20%	4%	5%	40%	89%	81%	40%	
Ai-luka			5%	10%	7%	37%	90%	93%	58%	
Hohrae	1%		10%	1%	4%	10%	96%	96%	80%	
Combined ¹⁶	2%	6%	4%	10%	6%	20%	88%	88%	77%	

Table 46. Perception on improved varieties productivity compared to local varieties¹⁵

[Data from 121, 57, 5, 4, 19 and 20 farmers planting Sele, Noi Mutin, Nakroma, Utamua, Ai-luka and Hohrae as well as 168 growing any of these varieties combined]

5.2.6 Plans for the 2016-17 cropping season

Table 47. Farmers willing to grow again the improved varieties in the future

Variety	2013	2014	2016
Sele	98%	99%	100%
Noi-Mutin	100%	98%	100%
Nakroma	97%	97%	100%
Utamua	92%	96%	100%
Ai-luka	92%	100%	96%
Hohrae	95%	100%	98%

[190, 134, 7, 13, 27 and 41 farmers planting Sele, Noi Mutin, Nakroma, Utamua, Ailuka and Hohrae answered this question]

¹⁵ In order to reflect the opinion of adopters who have personally experienced harvesting improved

varieties, only answers of farmers who grew the variety since 2014-15 or earlier are included here.

¹⁶ For the EoPS data, there were 14 cases out of 324 adopters for which opinions on productivity of MAF varieties varied according to the varieties. In order to simplify the data, it was decided that whenever the farmer mentioned for at least one crop that it is the MAF variety that yields better, the farmer was categorized as if he considered that all the MAF varieties yielded better (13 cases). In the other case, the farmer said one local cassava variety and Ai-luka had the same yielding while Utamua was less yielding than local varieties. This respondent was classified in the category "local and MAF varieties yield the same".

Variatu	Will grow a smaller area			Will gr	ow a simila	Will grow a larger area			
variety	2013	2014	2016	2013	2014	2016	2013	2014	2016
Sele	3%	2%	1%	60%	65%	50%	37%	33%	48%
Noi-Mutin	-	2%	2%	36%	68%	46%	64%	30%	52%
Nakroma	-			69%	74%	80%	31%	26%	20%
Utamua	17%			58%	68%	33%	25%	32%	67%
Ai-luka	9%			82%	52%	24%	9%	48%	76%
Hohrae	-			45%	58%	30%	55%	42%	70%

Table 48. Area of improved variety planned to be grown

[148, 114, 5, 9, 21 and 33 farmers planting Sele, Noi Mutin, Nakroma, Utamua, Ai-luka and Hohrae answered this question]

		Plan to p	olant	Area of MA	AF variety co	mpared to	Reason f	for wanti	ng to plant a	nother v	ariety as
Variety		another v	ariety	area of local variety			well				
Varietv	Year			(% am	ong valid an	swers)		(nui	nber of farm	ers)	
		% among valid answers ¹⁷	# of cases ¹⁸	SoL = other	SoL < other	SoL > other	Post- harvest losses	Taste	Insufficient seeds	Other	Harvest earlier ¹⁹
Sele	201320	43% / 55%	33 / 6	49% / 67%	15% / 17%	36% / 17%	6 / 2	10/3	4 / 0	13 / 1	NA
Noi Mutin	2014	70% / 68%	88 / 21	60% / 57%	31% / 33%	9% / 10%	66 / 66	44 / 44	2/2	20 / 20	NA
Nai	2016	70%	182	39%	17%	44%	103	35	41	39	100
	2013	41%	12	42%	33%	25%		4	1	6	NA
Nakroma	2014	41%	11	75%	25%		3	4	0	7	NA
	2016	43%	3	50%		50%			1	3	NA
	2013	58%	7	57%	14%	29%	3	3		1	NA
Utamua	2014	55%	11	70%	20%	10%	4	6	0	3	NA
	2016	50%	6	50%	25%	25%	6	3	3		NA
	2013	55%	6	67%	17%	17%	2	2		1	NA
Ai-luka	2014	79%	23	62%	38%		13	16	1	6	NA
	2016	89%	23	40%	25%	35%	12	10	10	3	NA
	2013	38%	8		38%	62%	3	2		3	NA
Hohrae	2014	61%	26	56%	32%	12%	15	19	0	8	NA
	2016	75%	27	33%	22%	44%	17	7	18	5	NA

Table 49. Planting again a local variety for the 2016-17 season

[259, 7, 12, 26 and 36 farmers planting a maize MAF variety, Nakroma, Utamua, Ai-luka and Hohrae answered the first question. 149, 2, 4, 20 and 18 farmers answered the second question.]

 ¹⁷ Farmers who said they didn't know if they will grow another variety were not counted as "valid cases".
 ¹⁸ The number of cases reported here is the number of adopters who said they plan to grow another variety.

¹⁹ This option was added only for the maize varieties in the EoPS.

²⁰ For 2013 and 2014, the first proportion is for Sele only and the second is for Noi Mutin only (no data collected for Nai).

6. Food security



6.1 Adoption and reaping the benefits of adoption





6.2 Hungry season

Figure 9. Proportion of foodcrop farmers experiencing hunger

	# of cases	Proportion experiencing hunger
Adopters since 2014-15 or earlier	158	54%
Non-adopters and first time adopters	373	69%
Male headed households	493	65%
Female headed households	38	66%



Figure 10. Evolution of the proportion of adopting and non-adopting HHs who experienced hunger²¹

Table 51. Hungry season question: comparison between answers from main respondents and
persons in charge of food preparation

Question	Answer among main respondents	Answer among persons responsible for food preparation
<i>Did your HH experience hunger in the last 12 months?</i>	65%	72%
Experience hunger in:		
February 2015	49%	42%
March 2015	20%	20%
April 2015	7%	7%
May 2015	3%	6%
June 2015	5%	6%
July 2015	9%	11%
August 2015	6%	12%
September 2015	7%	18%
October 2015	15%	25%
November 2015	51%	52%
December 2015	68%	71%
January 2016	71%	73%

[137 HHs answered the first question on experiencing hunger – this includes only valid cases.]

²¹ For the EoPS, the data included in the chart for adopters includes only adopters who grew MAF varieties since 2014-15 at least while the data for "non-adopters" includes non-adopters and first time adopters.

6.3 Consumption of self-grown foodcrops









Figure 11. Consumption of self-grown crops by farmers (Feb 2015 – Jan 2016)

[Percentages among 690 maize growers, 15 rice farmers, 226 peanut farmers, 630 cassava growers and 451 sweet potato farmers.]





	Self-	grown maize	Self	-grown rice
Months	Answer among main respondents	Answer among persons responsible for food preparation	Answer among main respondents	Answer among persons responsible for food preparation
February 2015	23%	28%	16%	15%
March 2015	77%	78%	25%	17%
April 2015	93%	90%	34%	26%
May 2015	84%	87%	59%	48%
June 2015	82%	80%	82%	65%
July 2015	78%	75%	86%	78%
August 2015	75%	69%	86%	80%
September 2015	70%	64%	89%	89%
October 2015	67%	59%	89%	87%
November 2015	59%	48%	84%	83%
December 2015	51%	42%	80%	76%
January 2016	47%	40%	75%	72%

Table 52. Months of consumption of self-grown maize and rice: comparison between answers from main respondents and persons in charge of food preparation

[192 HHs where two respondents were interviewed are represented in this table.]

6.4 Purchasing rice and maize

Table 53. Purchasing rice for HH consumption

	2011	2013	2016
Proportion of HHs buying	99.6%	94%	93%
Average # of months buying	9.8 months	9.4 months	10.7 months
Proportion buying rice every month	62%	65%	75%
Average quantity bought yearly	381 kg	378 kg	389 kg

[All 700 HHs answered the first question on buying rice.]

Table 54. Purchasing maize for HH consumption

	2013	2016
Proportion of HHs buying	47%	17%
Average # of months buying	NA	2.5 months
Average quantity bought yearly	NA	46 kg

[All 690 HHs answered the first question on buying maize.]

		# of cases	Average quantity of rice bought yearly
Adopters since 2014-15 or earlier		187	371 kg
Non-adopters and first time adopters		460	396 kg
Per months of consumption of self-grown rice:	0 months	3	540 kg
	1-4 months	19	334 kg
	5-8 months	44	270 kg
9	-12 months	44	201 kg
Per months of consumption of self-grown maize:	0 months	9	391 kg
	1-4 months	148	340 kg
	5-8 months	175	394 kg
9	-12 months	305	409 kg

Table 55. Quantity of rice purchased according to different factors

Table 56. Purchasing more or less rice now compared to 2011

Quantity purchased now compared to 2011	Proportion among 636 HHs who usually buy rice
Purchase less rice now	27%
Purchase as much now as in 2011	60%
Purchase more rice now	13%

Table 57. Purchasing rice now vs. food production and area grown now compared to 2011

		%	%	%		%	%	%
Quantity purchased	# of	producing	producing	producing	# of	growing	growing	growing
now compared to 2011	cases	less food	as much	more food	cases	smaller	same area	bigger
		now	food now	now		area now	now	area now
Purchase less rice now	81	46%	17%	37%	83	16%	64%	21%
Purchase as much now as in 2011	358	38%	45%	17%	375	26%	62%	12%
Purchase more rice now	167	57%	23%	20%	172	33%	55%	13%

Table 57 compares farmers' answers to the question "*Compared to 5 years ago, do you think your household buys more or less rice now*?" with what they answered to the question "*How would you compare the FOOD PRODUCTION of your household now/today with the food production of your household 5 years ago*?" and to the question "*How is the total amount of land that your household cultivates for FOODCROPS now compared to 5 years ago*?". The objective is to assess if the quantity of rice they purchase now is linked to how much food they are producing now and the area they grow now.

Possible answers	Proportion among 651		
r ossible allswei s	HHs who usually buy rice		
From sale of agricultural production	67%		
From salaries earned	19%		
From small businesses	20%		
From social payments	26%		
Other	43%		

Table 58. Origin of money used to buy rice

6.5 Staple food

Table 59. What do you consider being your main staple food and in 2011^{22}

Main staple food	% of HHs considering it as their main staple food now	% who say it was the same 5 years ago
Rice	42%	98% (4 HHs said before it was maize or maize and rice)
Maize	5%	100%
Rice and maize in equal measure	53%	NA

Table 60. Influence of gender of respondent on what is considered as the main staple food²³

Main staple food	% of HHs considering it as	% if respondent	% if respondent is
Main Staple 1000	their main staple food now	is a woman	a man
Rice	42%	47%	33%
Maize	5%	5%	4%
Rice and maize in equal measure	53%	49%	64%

²² Questions on staple food were asked to either the main respondent, or the person who cooks in the HH. The data here combines answers from all these cases.

²³ Result of Chi-Square test: Asymp. Sig. = 0.004, p<0.05.

	Among HHs	Among HHs whose
Question	whose main	main staple food is
	staple food is rice	maize
# of cases	208	15
During the last 12 months (Feb 2015 - Jan 2016), has there been a time when there was difficulty for your HH to eat this staple food (purchased or self-produced)?	29%	53%
During which months did you experience this difficulty;		
# of cases	60	8
Don't know	20%	25%
February 2015	25%	13%
March 2015	18%	13%
April 2015	10%	0%
May 2015	12%	0%
June 2015	18%	13%
July 2015	18%	13%
August 2015	20%	13%
September 2015	18%	25%
October 2015	23%	13%
November 2015	28%	38%
December 2015	42%	25%
January 2016	50%	13%

Table 61. Difficulty to eat the main staple food in the past 12 months

6.6 Consumption of wild foods

Question	Answer
# of cases	698
During the last year, did your household eat wild-foods harvested from _elsewhere (e.g. kumbili, maek, koto fuik, kontas, etc.)?	50%
During which months did you experience this difficulty;	
# of cases	349
Don't know	2%
February 2015	2%
March 2015	1%
April 2015	1%
May 2015	5%
June 2015	17%
July 2015	33%
August 2015	79%
September 2015	65%
October 2015	36%
November 2015	7%
December 2015	5%
January 2016	4%

Table 62. Proportion of HHs eating wild foods and when

Table 63. Why eating wild foods during these months

Reasons	% among 349 HHs
Because we did not have enough other food.	17%
Because we like to eat wild food (taste)	78%
Because we can get it for free.	73%
Because it is easy to get when it is in season.	59%
Other: "Because it's our country's food"	3%

6.7 Food security indicators

6.7.1 Reduced Coping Strategy Index (r-CSI)

In the past 7 days, were there ever times when	Among all respondents	Among respondents in charge of food preparation	Among other respondents	TL FNS ²⁴
# of cases	700	449	251	1270
your family had to eat less preferred or less expensive food?	28%	32%	21%	60%
you had to limit portion size at mealtimes?	29%	34%	20%	39%
adults had to eat less quantity in order for small children to eat?	25%	29%	18%	29%
your household had to reduce the number of meals eaten in a day?	26%	32%	16%	60%
your household had to borrow food or rely on help from friends/relatives to get food?	20%	21%	18%	62%

Table 64. Proportion of HHs using each coping strategy and r-CSI score

Tuble 05. Average 1 Usi Score according to		15
	# of cases	r-CSI score
Whole sample	684	5.2
Male headed households	642	5.3
Female headed households	42	4.5
Adopters since 2014-15 or earlier	207	4.9
Non-adopters and first time adopters	477	5.4
HHs experiencing hunger during the last 12 months	332	7.7
HHs not experiencing hunger during the last 12 months	184	2.3
Per months of consumption of self-grown rice: 0 month	ıs 3	1.3
1-4 mont	hs 25	6.9
5-8 mont	hs 62	3.6
9-12 mont	hs 64	3.6
Per months of consumption of self-grown maize: 0 month	ıs 9	3.4
1-4 mont	hs 152	8.7
5-8 mont	hs 179	4.1
9-12 mont	hs 334	4.3

Table 65. Average r-CSI score according to different factors

²⁴ The Timor-Leste Food and Nutrition Survey, UNICEF, 2013.

	# of HHs	% of HHs where there are no	% of HHs where there are distinction	Who are those who apply the strategy:			
Coping strategy	applying the strategy	distinction: all HH members apply the strategy	among members: not all HH members apply the strategy	Men	Women	Boys	Girls
Eating less preferred or less expensive food	196	54%	46% (90 cases)	53%	56%	34%	37%
Limiting portion size at mealtimes	203	51%	49% (100 cases)	88%	89%	6%	6%
Reducing quantity eaten by adults in order for small children to eat	172	82%	18% (31 cases)	45%	55%	NA	NA
Reducing the number of meals eaten in a day	181	41%	59% (107 cases)	92%	94%	1%	1%
Borrowing food or rely on help from friends/relatives to get food	140	85%	15% (21 cases)	33%	86%	0%	0%

Table 66. Gender of the HH members who apply each coping strategy

6.7.2 Food Consumption Score

Table 67. P	Proportion	of HHs within	each category	of FCS
-------------	------------	---------------	---------------	--------

	Among all respondents	Among respondents in charge of food preparation	Among other respondents	TL-FNS
# of cases	698	448	250	1270
Poor	1%	2%	0%	11%
Borderline	15%	15%	14%	28%
Acceptable/good	84%	84%	86%	61%

Table 68. Average FCS according to different factors

		# of case	FCS
Whole sample		698	58
Male headed households		653	58
Female headed households		45	52
Adopters since 2014-15 or earlier		210	59
Non-adopters and first time adopters		488	57
HHs experiencing hunger during the last 12 mont	hs	342	55
HHs not experiencing hunger during the last 12 m	onths	187	59
Per months of consumption of self-grown rice:	0 months	3	47
	1-4 months	26	53
	5-8 months	62	52
	9-12 months	64	57
Per months of consumption of self-grown maize:	0 months	9	52
	1-4 months	157	58
	5-8 months	182	56
	9-12 months	340	59

	Maize	Rice	Root crops
# of HHs who ate this food in the last 7 days	366	508	255
Proportion coming from own production:			
None	12%	66%	9%
Very little	9%	18%	8%
Little	8%	3%	14%
Half	5%	2%	7%
A lot	1%	1%	2%
Nearly all	2%	1%	0.4%
All	64%	10%	60%

Table 69. Sources of mains staple food eaten during the last seven days

Table 69 presents results of the questions asked at the end of the FCS questions: *"The maize/rice/root crops you ate last week was from your own production or not? If not, how much was from your own production?"*. The objective of asking these questions is to compare results with answers given to questions on which months could self-grown maize, rice, cassava and sweet potatoes be eaten. This comparison is done in Table 70.

Table 70. Average proportion of food coming from own production according to answers given for the question *"What months were you able to eat your own foodcrops?"*

Answers to the question on months of consumption of self-grown foodcrops (for January 2016)	# of cases who ate this food in the last 7 days	How much of the maize / rice / root crops eaten last week came from own production ²⁵
Still have own maize in January 2016	170	5.6
No more own maize in January 2016	194	3.3
Still have own rice in January 2016	73	4
No more own rice in January 2016	434	0.5
Still have own cassava in January 2016	155	4.8
No more own cassava in January 2016	96	3.5
Still have own sweet potato in January 2016	7	4.1
No more own sweet potato in January 2016	245	4.3

 $^{^{25}}$ Answers were converted into scores with 0 meaning that none of the maize / rice/ root crops eaten in the last seven days came from own production up to 6 meaning that all of the maize / rice / root crops eaten in the last seven days came from own production.

6.8 **Perception questions**

	Whole sample	Adopters since 2014-15 or earlier	Non-adopters or first-time adopters
# of cases	664	199	465
Much less now	17%	16%	18%
Somewhat less now	26%	27%	26%
Same as before	35%	33%	36%
Somewhat more now	19%	21%	17%
Much more now	3%	4%	3%

Table 71. Comparing food production in 2011 and 2016

Table 71 presents farmers' answers to the question "How would you compare the food production of your household now with the food production of your household five years ago?".

Table 72. Respondents' perception on the impact of growing MAF varieties on HH food security²⁶

	Do you agree to say that growing MAF varieties has helped your family to produce more food?		Do you agree to say that growing MAF varieties has reduced the number of months during which your HH experienced hunger?	
	2014 2016		2014	2016
# of cases	225	180	225	178
Strongly disagree	0	0	0	0
Disagree	3%	2%	5%	5%
Neither agree nor disagree	7%	13%	17%	15%
Agree	66%	66%	54%	61%
Strongly agree	22%	18%	22%	20%

²⁶ For the 2016 data, only cases of adopters growing the improved varieties since at least 2014-15 were considered in the analysis.

7. Economic situation of households

7.1 Overall economic situation of the households

7.1.1 PPI and agricultural assets indicator

House characteristics		% of total sample / average # owned	PNDS ²⁷
House size (m ²):	Average	67 m ²	
	Minimum	9 m ²	
	Maximum	180 m ²	
Category of house size:	< 45 m ²	31%	
	46 m ² - 69 m ²	36%	
	>70 m ²	33%	
Main material the walls	Palm fronds/bebak	22%	
	Bamboo	36%	
	Wood	3%	
	Clay/sod	1%	
	Metal	4%	
	Rock	0.1%	
	Cement blocks/ bricks	35%	
Main material of the roof	Palm/ leaves/grass	18%	13%
	Metal	81%	74%
	Tiles/shingles	0.1%	0%
	Bamboo	0.6%	1%
Main material the floor	Dirt/clay	60%	63%
	Wood	1%	2%
	Cement board	33%	28%
	Tiles	4%	4%
	Bamboo	3%	2%

Table 73. House size and construction material

Table 74. Household possessions

Household possessions	% of total sample /	PNDS
	average # owned	THEE
Cupboard	75% / 1.6	
Phone	88% / 2	70%
Radio	83% / 1.1	17%
Bicycle	9% / 1.2	6%
Sewing machine	1% / 1.7	
TV	27% / 1	24%
Tape/CD player	17% / 1	
Refrigerator	5% / 1.1	29%
Rice thresher	1%/1	
Rice hulling machine	0.7% / 1	
Computer	5% / 1.3	15%
Motorbike	23% / 1.2	17%
Boat	3% / 1.6	1%
Car/truck	2% / 1.1	2%

²⁷ Mixed Method Baseline Survey of the "Programa Nasional Dezenvolvimentu Suku", 2014.

Proportion of respondents living	Overall	Adopters	Non-adopters
# of cases	699	323	376
under the national poverty line	23%	24%	23%
with less than 1.25 \$/day	22%	22%	21%
with less than 2.50 \$/day	74%	75%	73%

Table 75. Poverty likelihoods

Agricultural equipment	% of total sample / average # owned	PNDS
Ное	81 % / 1.8	98%
Shovel	79% / 1.6	71%
Axe	58% / 1.1	65%
Water can	26% / 1.4	
Wheelbarrow / pushcart	21% / 1.1	18%
Drum	48% / 2	
Hand-operated sprayer	4% / 1.1	
Silo	7% / 1.4	
Hand tractor	2% / 1	1%
Ox cart	0.4% / 3.3	
Rice thresher	1% / 1	
Rice hulling machine/husker	0.7% / 1	
Big tractor	0.1% / 1	0%

Table 76. Agricultural assets owned

Table 77. Number of storage drums owned

Number of drums	% of total sample	
No drum	52%	
1drum	27%	
2 drums	11%	
3 drums	3%	
4 drums	4%	
5 drums or more	3%	

Table 78. Number of animals owned

Animals	% of total sample / average # owned	PNDS
Chicken	85% / 6	81%
Pig	90% / 3	82%
Cow	41% / 5	30%
Goat	40% / 3	26%
Sheep	2% / 4	3%
Horse	21% / 4	19%
Buffalo	16% / 2	11%

% among 695 HHs saying animals died	60%	
% among 415 HHs who had the following animals die and average # who died		
Chicken	65% / 12	
Pig	53% / 4	
Cow	21% / 3	
Goat	8% / 4	
Horse	6% / 2	
Buffalo	4% / 4	
Dog	5% / 3	

Table 79. Animals dying because of drought

[The average numbers of animals which died are calculated among farmers who did specify a number, i.e. 228 for chickens, 194 for pigs, 81 for cows, 22 for goats, 21 for horses, 18 for buffaloes, 19 for dogs.]

		# of	PPI	Agricultural
		cases	score	assets score
Whole sample		695	42	92
Male headed households		652	42	94
Female headed households		45	46	63
Adopters since 2014-15 or earlier		210	42	112
Non-adopters and first time adopters		489	42	83
Number of months the HH experiences hunger:	0 months	188	45	110
	1-4 months	278	40	77
	5-8 months	47	37	75
	9-12 months	3	33	56
r-CSI score 0 (no use of copin	g strategies)	366	44	107
1 – 8 (medium use of copin	g strategies)	165	42	80
9 and above (more use of copin	g strategies)	152	37	75
FCS	Poor	7	36	48
	Borderline	103	39	80
Acce	ptable/Good	587	43	95
Quantity of rice purchased	< 300 kg	117	44	92
	300 kg	293	42	86
	> 300 kg	239	40	85

Table 80. PPI and agricultural assets indicator according to different factors

7.1.2 Self-assessment

	% of HHs	Average PPI score
# of cases	698	697
Very poor	3%	33
Poor	16%	38
Getting along	80%	43
Comfortable	1%	48
Wealthy	0	

Table 81. Self-assessment of households' economic situation

Table 82. Comparing economic situation in 2011 and 2016

	Overall	Adopters since 2014-15 or earlier	Non-adopters and first time adopters	Average PPI score
# of cases	696	211	485	695
Much worse now	3%	2%	3%	37
Worse now	9%	10%	9%	40
Same as before	45%	37%	49%	41
Better now	39%	46%	36%	43
Much better now	4%	5%	4%	48

Different sources of income 7.2

Sources of income	Overall	Adopters since 2014-15 or earlier	Non-adopters and first time adopters	Average ranking
# of cases	699	211	488	per source of income
Selling livestock	63%	69%	61%	1.9
Selling crops	47%	56%	43%	2.2
Government payments ²⁸	43%	42%	43%	1.9
Plantation	37%	32%	39%	1.8
Small business ²⁹	28%	28%	27%	1.8
Day-labour	21%	22%	21%	1.9
Monthly salary ³⁰	18%	20%	17%	1.4
Selling fish	4%	5%	4%	1.7
Own company	0.6%	0.5%	0.6%	1.8
Money from CSP or CSPG	0.3%	0.9%	0	2
Other	0.3%	0	0.4%	1.5

Table 83. Various sources of income of interviewed HHs

²⁸ Pensions, veterans pension, "bolsa de mae".

 ²⁹ Small businesses range from selling local alcohol, fuel, wood, tais, processed food, etc.
 ³⁰ Ranges from government civil servants (teacher, SEO, Chefe suco, police, etc.) to taxi driver, security guard, etc.

Gender	Proportion among 153 HHs
Women only	68%
Men and women	18%
Men only	14%

Table 84. Gender of person who takes care of small business

Table 85. Origin of crops sold by households

Origin	Proportion
	aniong 527 mis
Crops produced only	95%
Crops bought only	0.6%
Crops produced and bought	3%
Don't know	2%

Table 86. Types of crops sold by households

Сгор	Proportion among 315 HHs
Vegetables and other crops	61%
Plantation (coffee, coconut, fruits, etc.)	31%
Maize	27%
Cassava	21%
Sweet potato	13%
Peanut	11%
Rice	5%

Table 87. Amount of money earned from selling crops

		Amount (\$)
# of cases		285
Average amount		373
	Minimum	5
	Maximum	3000

Table 88. Proportion of money earned from selling crops produced by the HH among the total HH income

Proportion	Overall	Adopters since 2014-15 or earlier	Non-adopters and first time adopters
# of cases	299	107	192
Less than half	65%	54%	71%
About half	20%	31%	14%
More than half	15%	15%	15%

8.1 Familiarity with MAF seed production groups

	2013	2014	2016
Do you know if there is a CSPG/CSP in your suco:			
Yes, there are.	22%	23%	21%
No, there are none	66%	46%	26%
I don't know.	12%	31%	53%
Proportion among those who said "yes" who really live in a suco where there is a CSPG	51%	91%	98%
Proportion among those who said "no" or "I don't know" who live in a suco where there is a CSPG	NA	79%	90%

Table 89. Farmers' awareness of the existence of CSPGs/CSPs

[Respectively, 668, 702 and 700 respondents answered this question in the MTS, AS and EoPS.]

Table 90. Proportion of respondents knowing about CSPG/CSP according to different factors

	# of cases	Proportion knowing about a CSPG/CSP ³¹
Adopters – first time growers	129	13%
Adopters – grew already a MAF variety the previous year	195	29%
Non-adopters	376	12%
Male respondent	385	19%
Female respondent	315	15%
Male headed households	655	18%
Female headed households	45	9%
Familiar with MAF varieties	300	25%
Not familiar with any MAF variety	400	11%

8.2 Participation in MAF seed production groups

C	Proportion	
Groups	among 700 HHs	
	20/	
CSPG	3%	
CSD	104	
CSF	1 70	
Other farmer groups	10%	
A :	4.07	
Arisan	1%	
Saving and loans	5%	
Saving and Ioans	570	
None	82%	

Table 91. Participation in groups

³¹ The analysis in this table excludes respondents who said the group they referred to was producing none of the five staple crops and respondents who are living in sucos where there aren't any CSPG/CSP.

Gender	Proportion among 28 HHs	
Mon	4604	
Men	40%	
Women	18%	
Both men and women	36%	

Table 92. Gender of the person in the HH who is a member of a CSPG or CSP

Table 93. Duration of membership in CSPG/CSP

Duration	Proportion
	among 28 HHs
Average	2.8 years
Minimum	1 year
Maximum	5 years

Table 94. Varieties grown by the CSPG/CSP respondents are members of

Variety	Proportion among 28 HHs
Maize (not specified the variety)	7%
Sele	61%
Noi Mutin	32%
Nakroma	29%
Peanut (not specified the variety)	11%
Utamua	14%
Cassava (not specified the variety)	4%
Ai-luka	7%
Hohrae	7%
Non MAF varieties	7%

Table 75. Receiving seeus nom the CSI 0/CSI	Table 95.	Receiving	seeds from	the	CSPG,	/CSP
---	-----------	-----------	------------	-----	-------	------

	# of cases	Proportion who received seeds
Total sample	27	82%
Adopters for 1-2 years	13	77%
Adopters for 3 years or more	14	86%
Member is a man	13	69%
Member is a woman	4	75%
Member are both men and women	10	100%

	CSPG/CSP members		Non members	
	# of cases	Result	# of cases	Result
Number of hungry months experienced	12	2.8	317	3.3
Number of months of self-grown maize consumption	28	8.1	662	7.7
FCS score	28	63	670	58
r-CSI score	28	4.6	656	5.3
PPI score	28	43	671	42
Agricultural assets indicator	28	117	667	91
Proportion of HHs earning money from selling crops ³²	28	68%	671	46%

Table 96. Characteristics of CSPG members

Table 97. Being member of CSPGs/CSPs in the past only

% among 223 HHs who know about CSPG/CSP but are not members now	2% (i.e. 5 HHs) were members of CSPGs/CSPs in the past	
Gender of the persons who were members	3 HHs: men	
	1 HH: men and women	
	1 HH: no information	

³² This is the only statistically related variable. Result of Chi-Square test: Exact Sig. = 0.017, p<0.05.