

CHAPTER 1 HOUSEHOLDS WITH COCONUTS

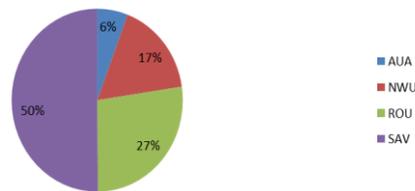
Coconuts and coconut products have been major export commodities in the past. However the effects of natural disasters, pest and diseases price and labor requirement, exports had been decreasing over the years.

The coconut industry had been revitalize in recent years as part of government initiative and new private sector companies have been set up that purchased coconuts from farmers at competitive prices.

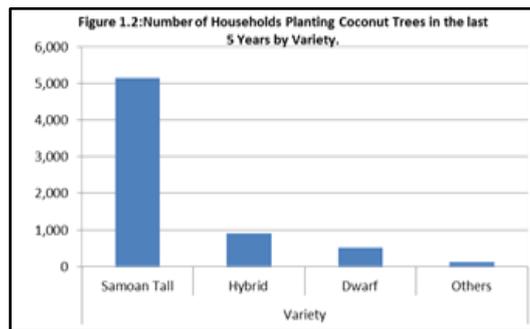
The 2017 coconut survey covers 17,022 households with 10 or more coconut trees. These households were identified from the 2015 Agriculture Survey. Of this total, 34 percent of households planted any coconut trees in the last five years with the Savaii region recording the highest at 50 percent.

1.1 Coconut trees Planted

Figure 1.1:Percentage of Households Planting New Coconut Trees in the last 5 years by Region



Re planting in the last five years is predominantly in the rural areas; Savaii and ROU who have better access to land.



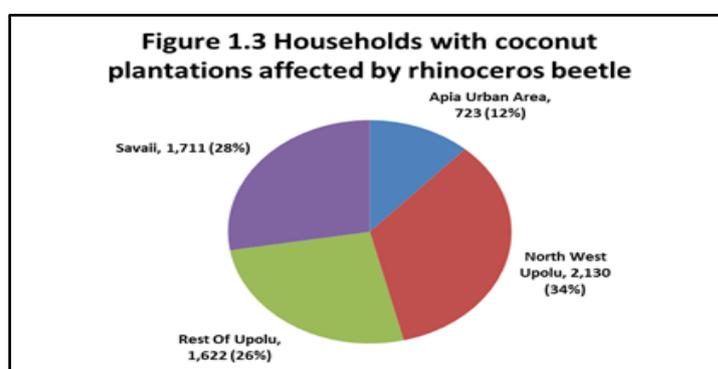
In the last five years, Samoan Tall was the preferred variety grown by the majority of households, representing 88 percent. These households planted an estimated 757,000 of the Samoan Tall variety which accounted for 84 percent of coconut trees planted.

Region	No. of hholds	Variety			
		Samoan Tall	Hybrid	Dwarf	Others
SAMOA	17,022	757,384	90,050	47,048	9,615
AUA	1,267	19,631	1,090	373	
NWU	3,632	79,429	15,823	1,874	
ROU	5,055	112,763	17,835	5,033	2,323
SAV	7,069	545,560	55,303	39,768	7,292

Hybrid variety was the second most grown variety. The majority of coconut trees planted was in the rural areas (Savaii and ROU) which accounted for 87 percent of the total number of coconut trees planted.

1.2 Coconut Farms Affected by Rhinoceros Beetle

Rhinoceros beetle is the main pest destroying the coconut industry. In recent years, MAF had implemented numerous programs to at least contain the spread of the pest, by identifying the most affected areas and supplying traps to minimize the rhinoceros beetle population.



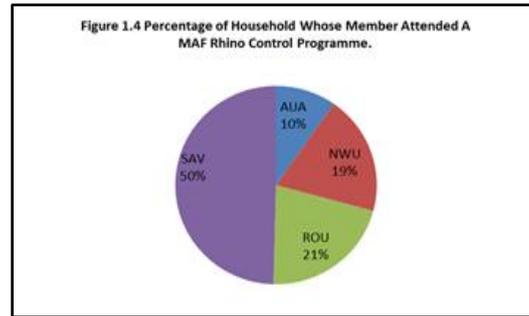
Of the total 17,022 households with 10 or more coconut trees, 36 percent of households with coconut plantations are affected by rhinoceros beetle. Areas affected vary by region as indicated by Figure 1.3. The most affected area is NWU which accounts for more than 30 percent of the total households.

	Severity (%)			
	<25%	25% - 50%	51% - 75%	>75%
SAM	63	27	7	3
AUA	70	25	2	2
NWU	60	31	6	3
ROU	60	23	13	4
SAV	66	28	5	2

The survey indicated that the majority of coconut plantations affected by the rhino beetle are in the <25% severity rate, as indicated by Table 1.2 above. However, there is a significant percentage of households whose plantations are above the 50% severity rate.

1.3 Attendance to MAF Trainings.

Training is an important activity not only to enlist the support of the farmers in the development of agriculture in general but also to disseminate updated information, inform them of short and medium term plans of priority areas that need to be addressed directly to them.



Of the 17,022 households, only 11 percent had a household member that attended any MAF Rhinoceros Beetle control programme in the two years prior to the survey. Surprisingly, of this 11 percent, 50 percent were from Savaii which happens to be the second most affected region, after NWU with 34 percent

Summary

Coconut has been a major export commodity but the adverse effects of natural disasters, Rhino beetle infestation, price fluctuations and labour requirement have led to low export volumes over the years. However, numerous and various government initiatives and a few private companies were able to assist in the revitalization of the coconut industry through purchasing of coconuts from farmers at competitive prices.

Most of households with 10 or more coconut trees who planted coconut trees in the past five years were in the Savaii and ROU regions with 50 percent and 27 percent, respectively, indicating that replanting is occurring in rural areas due to more access to land.

Two coconut varieties (Samoan Tall and Hybrid) are the preferred varieties grown by most households in the last five years.

Coconut farms throughout the country have been adversely affected by the Rhinoceros beetle, especially in the NWU region. This has led to MAF to conduct a rhinoceros beetle control campaign over the years where farmers were trained on how to eradicate this pest but unfortunately, the participation rate was low as reported by the survey.



Coconut trees affected by Rhino Beet

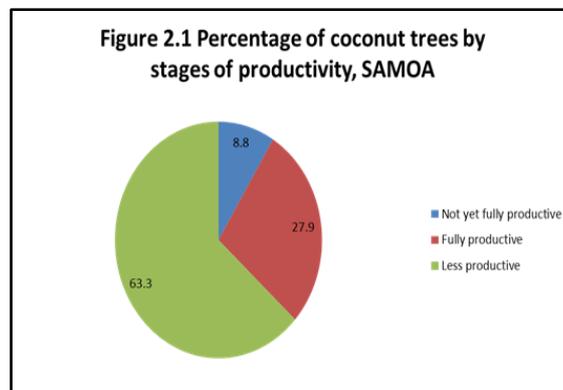
CHAPTER 2 STRUCTURE OF COCONUT FARMS

In 2017 there were a total of 19,538 households with 10 or more coconut trees with a total estimated number of coconut trees of 3.3 million.

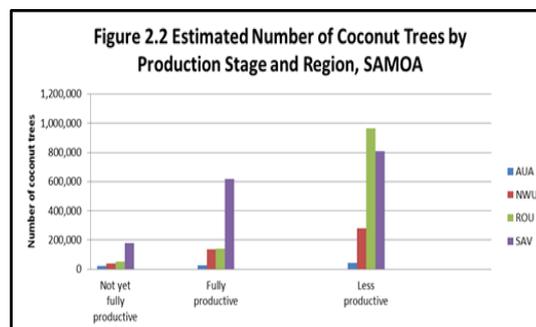
Of these 3.3 million trees about 63 percent of the trees were recorded with an age of 30 or more years. Twenty eight percent of the trees were reported to be between the ages of 15-29 years while 9 percent were below 14 years.

2.1 Age Structure

Coconut trees have a productive life of up to 60 years and commence bearing nuts between 5-7 years after planting. Coconut palms generally reach full production at 15-20 years after planting¹.



Sixty seven percent of fully productive coconut trees are grown in Savaii as compared to other regions. This may be influenced by households in Savaii's direct involvement in the government crop bonus schemes, Stimulus Package Program, and Agriculture Show competition in addition to farmer's own desire to plant new coconut trees.

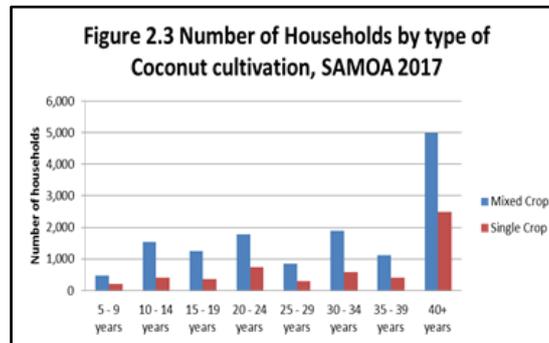


About 46 percent of less productive trees are found in the Rest of Upolu region indicating that the supply of coconut is at risk in ROU and the need for consideration in replanting initiatives could mitigate the impact of shortage of coconut supply.

¹ Farm Management Manual, June 2013, p60

2.2 Type of Cultivation

According to the Agriculture Survey Report 2015, ROU recorded about 5,500 households engage in growing taro and ta'amu compared to much lower totals in other regions. This indicated that farmers in ROU may be more content with growing taro than replanting coconut trees contributing to the large number of less productive trees in ROU.



Of the total number of households (13,899) with 10 or more coconuts under mixed crop cultivation, 57 percent have less productive trees; 30 years and over with majority in the more rural areas of ROU (48%) and Savaii, (32%)

It also indicated that coconut trees are becoming unproductive in terms of nut yield, nut size, and the number of nuts produced by a tree per year.

Forty percent of households under mixed crop cultivation had coconut trees in the age group 10-29 years.

This implies that more coconut trees planted by households in the 4 regions during the crop bonus scheme in the early 70's and the stimulus package after the cyclones in 1990's & early 2000 as part of government strategy to revitalize the agriculture sector including the coconut industry.

Most coconut trees tend to intercrop with other food crops, tree crops and livestock which is more economically and financially viable as a source of income, food security and employment for rural communities.

Figure 2.3 shows that most coconuts are preferably grown under the mixed cropping system which reflect the goal of such government incentive schemes as crop bonus scheme, stimulus package program, agriculture show farm competitions in boosting agriculture sector through the intercropping of major export crops with food crops and livestock.

The majority of small holder coconut growers in the 4 regions tend to adopt the mixed cropping system which is economically and financially feasible in terms of reducing farm management costs (e.g. weeding), and maximizing benefits.

When the market price of coconut is relatively low compared to other agricultural produce, a farmer could benefit from selling other crops like cocoa, coffee, etc. In addition, the mixed-cropped farming system which is similar to our traditional farming and the new concept of promoting the organic farming system is also considered to be environmentally friendly and socially acceptable. This has advocated the global effort of coping with the devastating

effects of climate change and becoming more disaster resilient.

In contrast, coconut grown under the single cropping system is normally favored by big institutions like STEC, Lata farm; church farms (EFKS, Methodist) to ensure achieving their major target output of profit maximization. Cattle are normally grazing under coconuts in these big farms with few mixed cropping. The disadvantages of this cropping system is that if there is a pest/disease outbreak, the whole farm can be easily affected, for instance the widespread of coconut rhinoceros beetle and STEC is reportedly one of the breeding sites.

Summary

Coconut farms in Samoa are predominantly grown by households with 10 or more coconut trees. Most of fully productive coconut trees are grown in Savaii as compared to other regions due to their direct involvement in government incentive schemes.

Most of less productive coconut trees are found in ROU region that require the replanting initiatives to mitigate the shortage of coconut supply in the future. These households are also engaged in growing food crops rather than replanting coconut trees thereby contributing to a large number of less productive coconut trees in ROU.

Forty percent of households grow coconut trees under the mixed cropping system during the government incentive schemes to revitalize agriculture sector after natural disasters. This is economically and financially viable, environmentally friendly and socially acceptable. In contrast, coconuts grown under the single cropping system is normally practiced by large farm institutions to maximize profits with a high risk of pest/disease outbreaks.

CHAPTER 3 SALES, CONSUMPTION AND ORGANICALLY CERTIFIED FARMS

Sales, Consumption and Organically Certified Farms.

Sales of coconut are predominantly through the local markets and oil producing local enterprises. However a few commercial coconut plantations exported husked coconuts to overseas markets. Furthermore, locally produced coconut oil is also exported. Due to requirements from overseas markets, some coconut plantations are now organically certified and these plantations are the main supplier to oil producing enterprises. Coconut remains a main part of the Samoa daily diet. Furthermore, coconut is also widely used as an animal feed, particularly for pigs.

3.1 Sales of coconuts and coconut products

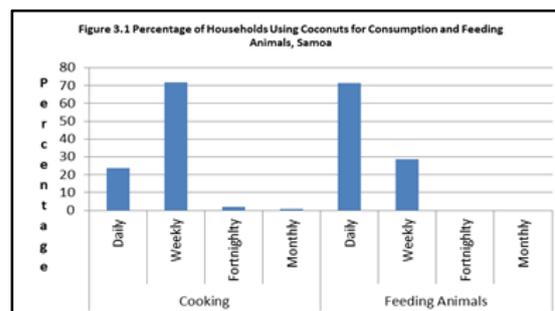
Region	No. of Household Selling	No. of households selling coconuts by type		
		Whole Nuts	Husked Nuts	Drinking Nuts
SAM	4,022	2,234	2,161	439
AUA	173	128	52	46
NWU	740	494	123	169
ROU	709	505	287	82
SAV	2,401	1,108	1,699	143

Of the total number of households surveyed, 24 percent sold coconuts (whole nuts, husked nuts or drinking nuts) during the reference period. The majority of these households are from the Savaii region accounting for 60 percent and 18 percent respectively from both NWU and ROU. More than 50 percent of households sold either whole nuts, husked nuts or both. (Note: percentage exceeds 100 due to double counting).

Region	No. of households with 10 or more coconut trees	No. of household Selling copra	No. of households selling copra by type	
			Green	Dry
SAM	17,022	429	190	283
AUA	1,267	15	15	0
NWU	3,632	3	3	0
ROU	5,055	0	0	0
SAV	7,069	411	173	283

Copra (dry or green) is sold to the oil producing enterprises. From the survey, only 3 percent of households sold either dry or green coconuts during the reference period, and 96 percent of these households are from Savaii. Copra preparation requires a copra drier and additional labor that may have contributed to the low number of households producing and selling copra. Furthermore, whole and husk nuts are mainly for home consumption and feeding animals and therefore have a steady and larger market base.

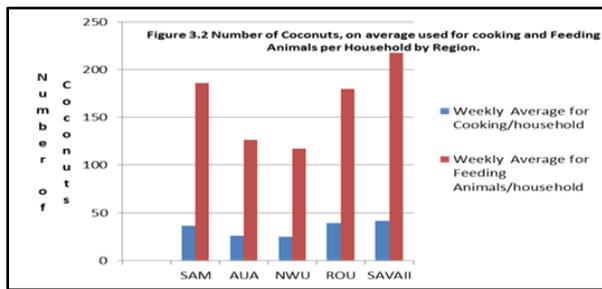
3.2 Consumption of Coconuts



More than 70 percent of households used coconuts for cooking on a weekly basis. This reflects that the traditional Sunday to'onai which always includes palusami is still practised throughout the country particularly in the rural areas. However, a quarter of the households used coconuts for cooking on a daily basis.

In contrast, more than 70 percent of

households used coconuts on a daily basis for feeding animals indicating the importance of coconuts as an animal feed.

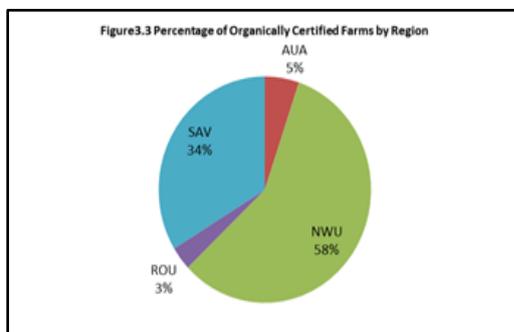


The weekly national average number used for cooking and feeding animals was 36 and 186, respectively. Coconut used for feeding animals was estimated at 2.4 million nuts per week accounting for 80 percent of nuts used for both cooking and feeding animals.

3.3. Organically Certified Farms

The demand for Organic agricultural produce had risen in recent years with the private sector leading this initiative. Organically certified coconut farms is an initiative to ensure the continuous supply of organic coconut product for local and overseas markets.

The survey indicated that only 9 percent of coconut farm were organically certified. To sustain the demand from manufacturers of organic coconut oil and related products, there is a need to promote organic coconut farming in the country.



Savaii and NWU regions account for over 90 percent of organically certified coconut farms. Organic coconut farms promotion

should be a national effort with particular emphasis in the rural areas.

3.4 Summary

Coconut sales are predominantly for local produce markets and oil producing enterprises. However, husked coconuts are exported to overseas markets by few commercial coconut plantations including locally produced coconut oil. Some coconut plantations are organically certified and the main suppliers to oil producing enterprises due to a high demand from overseas markets.

Coconut is a staple food of Samoan daily diet and used as animal feed. Of the total number of households surveyed, the second highest coconut sales (whole nuts, husked nuts or drinking nuts) are from Savaii, the highest and lowest coconuts sold are from both NWU and ROU, respectively.

Copra (dry or green) is sold to oil producing enterprises by Savaii households. Whole and husked nuts are mainly for home consumption and feeding animals and thus having a steady market base. Most households surveyed tend to use coconuts for weekly cooking particularly the palusami for Sunday toonai. They also use coconuts for daily cooking and feeding animals especially in Savaii. The percentage of coconuts used for feeding animals is more than those used for cooking.

Both local and overseas market demand for organic agricultural produce is growing with the private sector leading this initiative. Organically certified coconut farm is an initiative by government to supply these markets continually. But just only few coconut farms use organically certified to meet the organic market demand. Hence, promoting organic coconut farming in the country is a need particularly in rural areas.