

PREFACE

The 2002 Agricultural Survey is the second Agricultural Survey conducted by the Department of Statistics (DOS) since the last Agricultural Census in 1999. It collected the same information as with the 2000 Survey with the addition of information on climate, forestry and fisheries.

The exercise was funded by the Government of Samoa and was jointly conducted by the Department of Statistics (DOS) and the Ministry of Agriculture, Forests, Fisheries and Meteorology (MAFFM).

The survey provided information on the Agricultural sector which we hope the stakeholders and policy makers will find useful in the development of Agriculture in Samoa.

I would like to record my appreciation to our respondents (Head of Households) for their continuing support in providing the information's asked of them.

To our colleagues at MAFFM, we thank you for your continuous support in providing the supervisory work during the fieldwork by your extension officers.

Sefuiva Reupena Muagututia
DEPUTY CHIEF EXECUTIVE OFFICER
STATISTICAL SERVICES
MINISTRY OF FINANCE

TABLE OF CONTENTS

Page Number

LIST OF TABLES	3
SUMMARY OF RESULTS	5
* Agricultural Activity	
* Sale of Major Crops	
* Consumption of Major Crops	
* Livestock and Poultry	
* Fisheries	
CHAPTER ONE: Introduction	8
CHAPTER TWO: Survey Methodology	9
CHAPTER THREE: Analysis of Results:	10
1. Level of Agricultural Activity	
2. Holding	
3. Land Tenure	
4. Crop Area	
5. Sale and Consumption of Major Crops;	
i Coconuts	
ii Cocoa	
iii Banana	
iv Taro	
v Taro Palagi	
vi Taamu	
6. Livestock and Poultry	
7. Fisheries	
APPENDIX:	18
1. Definitions	
2. Weights	
3. Tables	
4. Survey Questionnaire	

LIST OF TABLES

Table 1: Number of Households by level of Agricultural Activity by Region

Table 2: Number of Holdings, by level of Agricultural Activity by Region

Table 3: Number of Parcels by level of Agricultural Activity by Region

Table 4: Number of Holdings growing crops by type of Crops Grown by Region

Table 5: Number of Holdings growing crops mainly for Home Consumption by type of Crops Grown by Region

Table 6: Number of Households growing crops mainly for Sale by Type of Crops Grown by Region

Table 7: Number of Households growing crops by Type of Crops partly for Sale and Partly for home Consumption by Region

Table 8: Number of Holdings by Size of Holding by Region

Table 9: Area of holding by size of Holding by Region

Table 10: Number of parcels by Size of Parcel by Region

Table 11: Area of Parcels by Size of Parcels by Region

Table 12: Area of Parcels (in Acres) by Type of Land Tenure by Region

Table 13: Area of Parcels (in Acres) by Main Land Use Classification by Region

Table 14: Estimated single Crop Equivalent Area (Acres) by Crop Type by Region

Table 15: Number of Households Selling and/ or Consuming Coconuts by Quantity and Value of Last Sale

(\$Tala) and average weekly Consumption (number) by Region

Table 16: Number of Households Selling and/ or Consuming Cocoa by Quantity and Value of Last Sale

(\$Tala) and Average weekly Consumption (cups) by Region

Table 17: Number of Households Selling and/ or Consuming Banana by Quantity and Value of Last Sale

(\$Tala) and Average weekly Consumption (bunches) by Region

Table 18: Number of Households Selling and/or Consuming Taro by Quantity and Value of Last Sale (\$Tala) and Average weekly Consumption (number) by Region

Table 19: Number of Households Selling and/or Consuming Taro Palagi by Quantity and Value of Last Sale

(\$Tala) and Average weekly Consumption (baskets) by Region

Table 20: Number of Households Selling and/or Consuming Taamu by Quantity and Value of Last Sale

(\$Tala) and Average weekly Consumption (number) by Region

Table 21: Number of Households Raising and Keeping Livestock by Type of Livestock by Region

Table 22: Number of Livestock Kept by Type of Livestock by Region

Table 23: Number of Households Raising Pigs, Number Kept, Slaughtered and Sold Live by Region

Table 24: Number of Households Raising Chickens, Number Kept, Slaughtered and Sold Live by Region

Table 25: Number of Households Raising Pigs and Number Kept, by size of Pig Holding by Region

Table 26: Number of Households Keeping Chickens and Number Kept by Size of Chicken Holding by Region

Table 27: Number of Households Engaged in Fishing by Number of People by Sex by Region

Table 28: Number of Fishing Households, Amount of Seafood Caught, Eaten, Sold and/ or Given Away (\$Tala)

Table 29: Number of Households, Amount of Seafood Bought, Eaten, Sold and/ or Given Away (\$Tala) by Region

Table 30: Total Household using Chemicals

Table 31: Total Household planting any Forest Trees

Table 32: Best Month to grow crops by total number of Households (Apia Urban Area)

Table 32: Best Month to grow crops by total number of Households (North West of Upolu)

Table 32: Best Month to grow crops by total number of Households (Rest of Upolu)

Table 32: Best Month to grow crops by total number of Households (Savaii)

Table 32: Best Month to grow crops by total number of Households (Samoa)

Table 33: Total Population Enumerated by Age Group and Sex by Region

Table 34: Total Population of Agriculturally Active Households by Sex and Location of Households

Table 35: Total Population of Fishing Households by Age Group and Sex by Location of Households

SUMMARY OF RESULTS

AGRICULTURAL ACTIVITY

TOTAL NUMBER OF HOUSEHOLDS	23,277
NUMBER OF AGRICULTURALLY ACTIVE HOUSEHOLDS	17,829
NUMBER OF NON-AGRICULTURAL HOUSEHOLDS	4,561
NUMBER OF MINOR-AGRICULTURAL HOUSEHOLDS	887
TOTAL NUMBER OF HOLDINGS	17,829
TOTAL NUMBER OF PARCELS	38,414

SALE OF MAJOR CROPS

PERCENTAGE OF AGRICULTURALLY ACTIVE HOUSEHOLDS SELLING YOUNG AND/OR MATURED COCONUTS	12%
PERCENTAGE OF AGRICULTURALLY ACTIVE HOUSEHOLDS SELLING COPRA	3%
PERCENTAGE OF AGRICULTURALLY ACTIVE HOUSEHOLDS SELLING COCOA	11%
PERCENTAGE OF AGRICULTURALLY ACTIVE HOUSEHOLDS SELLING BANANAS	15%
PERCENTAGE OF AGRICULTURALLY ACTIVE HOUSEHOLDS SELLING TARO	26%
PERCENTAGE OF AGRICULTURALLY ACTIVE HOUSEHOLD S SELLING TARO PALAGI	4%
PERCENTAGE OF AGRICULTURALLY ACTIVE HOUSEHOLDS SELLING TAAMU	8%

CONSUMPTION OF MAJOR CROPS

PERCENTAGE OF HOUSEHOLDS CONSUMING YOUNG COCONUTS	35%
AVERAGE WEEKLY CONSUMPTION	10 nuts
PERCENTAGE OF HOUSEHOLDS USING COCONUTS FOR COOKING	74%
AVERAGE NUMCBER OF COCONUTS USED FOR COOKING PER WEEK	42 nuts
PERCENTAGE OF HOUSEHOLDS USING COCONUTS FOR FEEDING ANIMALS	57%
AVERAGE NUMBER OF COCONUTS FOR FEEDING ANIMALS PER WEEK	160 nuts
PERCENTAGE OF HOUSEHOLDS CONSUMING COCOA	53%
AVERAGE WEEKLY CONSUMPTION OF COCOA	3 cups
PERCENTAGE OF HOUSEHOLDS CONSUMING BANANAS	78%
AVERAGE WEEKLY CONSUMPTION OF BANANA	3 bunches
PERCENTAGE OF HOUSEHOLDS CONSUMING TARO	67%
AVERAGE WEEKLY CONSUMPTION OF TARO	38 pieces
PERCENTAGE OF HOUSEHOLDS CONSUMING TARO PALAGI	15%
AVERAGE WEEKLY CONSUMPTION OF TARO PALAGI	9 baskets
PERCENTAGE OF HOUSEHOLDS CONSUMING TAAMU	41%
AVERAGE WEEKLY CONSUMPTION OF TAAMU	3 pieces

LIVESTOCK AND POULTRY

NUMBER OF LIVESTOCK KEPT AS OF DAY OF ENUMERATION;

PIGS	260,000
GOATS	2,300
CHICKEN	516,000

FISHERIES

PERCENTAGE OF HOUSEHOLDS ENGAGED IN FISHING	25%
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PERCENTAGE OF PELAGIC FISH (in Tala) CAUGHT AND

(I) EATEN	8%
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(II) SOLD/ GIVEN AWAY	92%
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PERCENTAGE OF REEF FISH (in Tala) CAUGHT AND

(I) EATEN	53%
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(II) SOLD/ GIVEN AWAY	47%
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PERCENTAGE OF FIGOTA (in Tala) CAUGHT AND

(I) EATEN	28%
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(II) SOLD/ GIVEN AWAY	72%
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PERCENTAGE OF DEEP WATER FISH (in Tala) CAUGHT AND

(I) EATEN	10%
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(II) SOLD/ GIVEN AWAY	90%
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CHAPTER ONE: INTRODUCTION

The Agricultural Survey 2002 is a follow up of the 2000 Survey of Agriculture to provide key information required for Agricultural planning.

The Survey was conducted as a joint exercise between the Department of Statistics (DOS) and the Ministry of Agriculture, Forests, Fisheries and Meteorology (MAFFM).

The fieldwork was conducted in October/ November for three weeks by a team of thirty enumerators. The Agricultural Extensions Officers were employed as supervisors during the enumeration period.

The 1999 Census of Agriculture results were used as a frame in which a ten percent (10%) sample was selected. A total of 2,302 households were enumerated for the whole country broken down into 4 Regions as follows:

Number of Households Enumerated by Region

Total (Samoa)	Apia Urban Area	North West Upolu	Rest of Upolu	Savaii
2302	625	653	449	575

The Survey questionnaire was basically the same with the one used in the 2000 Survey with the extension to include some information on forestry, climate and use of fertilizers.

The expansion as noted above was the result of consultation with MAFFM.

CHAPTER TWO: SURVEY METHODOLOGY

Census or complete enumeration of a population was thought to be the only way to collect reliable information about that population. However, the resources required are enormous and the respondent burden is great. The development of sampling theory over the last 50 years or so, has overcome this problem. Today, sample survey are universally accepted as providing reliable information about the entire population with much less resources.

For statistical purposes, Samoa is divided into four Regions; Apia Urban Area (AUA); North West Upolu (NWU); Rest of Upolu (ROU); and Savaii (SAV). These four regions are further sub divided into Faipule District, which are further sub divided into villages. Villages are further sub divided into Enumeration Area (EA), 878 in total.

The 2002 Agricultural Survey was based on a ten percent (10%) sample selected systematically. That is, every tenth enumeration block was selected from a random start, and all households in the selected blocks were included in the sample.

The above methodology relies on the enumeration areas being of similar size to ensure that when the weights are applied to the household and individual counts, the population counts of households and individuals are closely approximated.

Unfortunately, this was not the case. The number of households and persons in each enumeration area varies enormously.

To overcome this problem, the initial sample selection weights were adjusted to benchmark them to the official number of households per region from the 2001 Population Census.

CHAPTER THREE: ANALYSIS OF RESULTS

1. LEVEL OF AGRICULTURAL ACTIVITY

As with the 2000 Agriculture survey, five categories were used to establish the level of agricultural activity of each households. Three of these classified households as “agriculturally active” (Home Consumption only, mainly Home Consumption and Commercial) while the remaining two classified households as “non-agriculturally active” (Non-Agricultural and Minor Agricultural).

From the survey, 77 percent of the households were classified as agriculturally active with the remaining 23 percent as non-agriculturally active. Households in Savaii remains predominantly agriculturally active (94.9% of all households) compared to Upolu households (71% agriculturally active).

Rest of Upolu region exhibited similar characteristics with Savaii with 96 percent of households agriculturally active. The survey results provides a similar pattern with the 2000 survey.

2. HOLDING

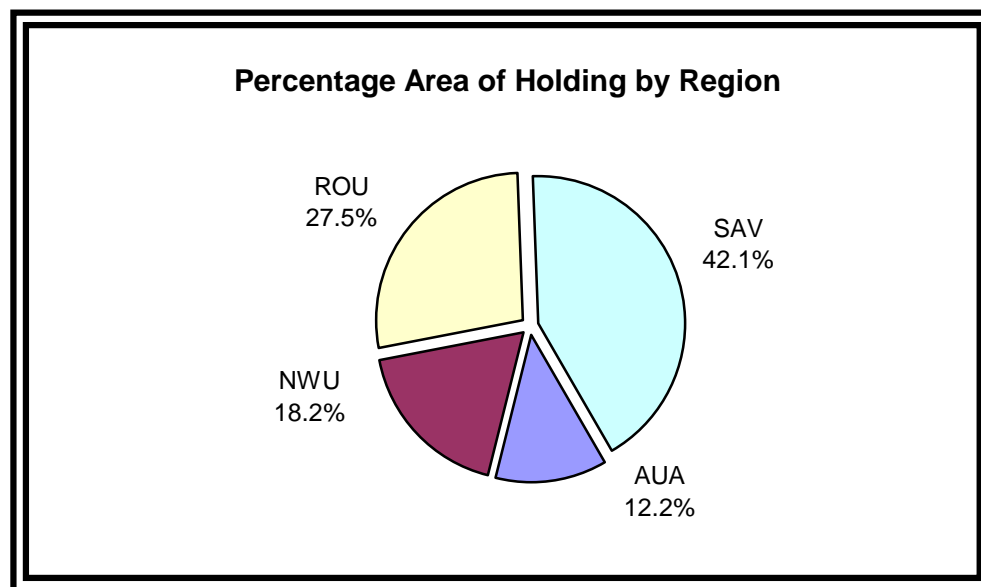
An agricultural holding may consist of one or more parcel. Some 38,414 parcels were recorded in 17,829 holdings.

Average Number of Parcels per Holding by Region:

Region	Average Number of Holdings
Apia Urban Area	2
North West Upolu	2
Rest of Upolu	2
Savaii	3
SAMOA	2

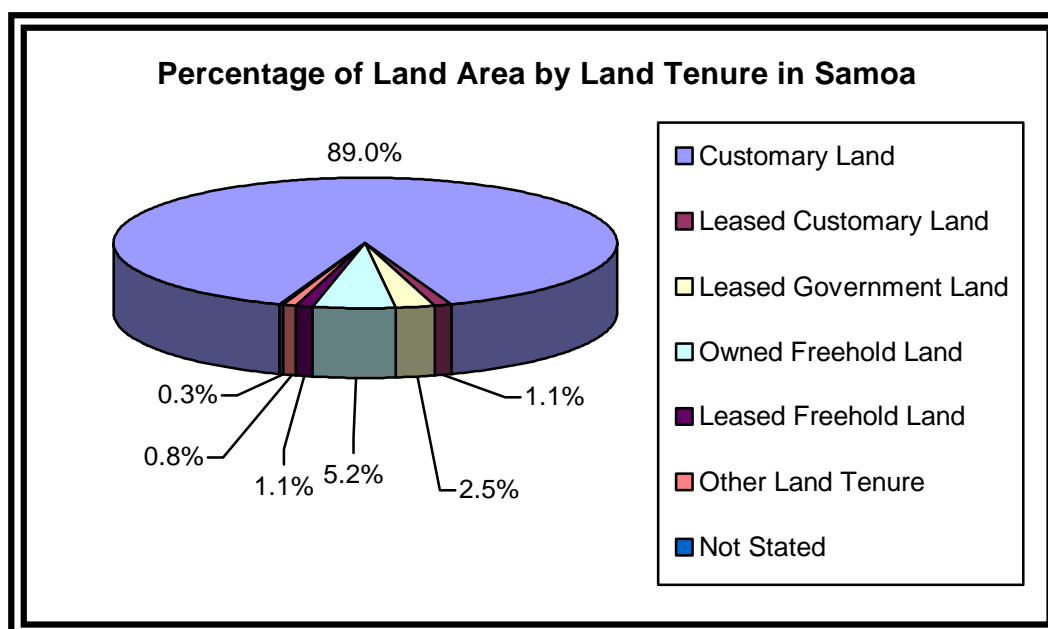
The above results are similar to that of the 2000 Survey, indicating that there has not been much new parcels of land developed for agricultural purposes between the 2000 and 2002 surveys.

The regional wide distribution of holdings also does not show any significant changes from 2000.



3.LAND TENURE

Eighty nine percent of the parcel land area is classified as customary land, same as the 2000 survey results, while five percent were freehold land. The remaining six percent were under “other land tenure categories”.



4. CROP AREAS

The survey collected informations on crop areas for the household sector only. Furthermore, the crop areas referred only to single crop and mixed crop patterns. It does not include scattered crops which were collected in the Census.

The survey recorded some 36,000 acres of coconuts planted as a single crop compared to 38,000 acres recorded in the 2000 survey. However, the total area under coconut reported in the Census was 46,000 acres. The difference is most likely due to the concept of single/ mixed/ scattered crop pattern.

Area under cocoa has increased by 20 percent from 8,200 acres in 2000 to 9,800 acres in 2002.

Area under Taro has increased slightly by 1,100 acres to 10,900 acres in the 2002 survey

However, the average weekly consumption has increased dramatically.

Area under Taamu has marginally decreased from 5,200 in 2000 to 4,900 acres in 2002.

Area under banana recorded a significant increase of 27 per cent in 2002 to 17,800 acres.

In the case of Kava, the survey data recorded only 670 acres of Kava compared to about 1,100 in 2000. The user is advised to use the survey results with cautious. We believed, because of the sampling technique employed, it was not possible to obtain reliable data on crops that are grown in a particular areas of the country.

5. SALE AND CONSUMPTION OF MAJOR CROPS

The information on the sale of major crops refers only to agriculturally active households while the consumption information refers to all households.

(i) COCONUTS

(A) Consumption

Seventy four percent of households were recorded as using matured coconuts for human consumption. This is a minor increase from seventy one percent recorded in the 2002 survey. Furthermore, the average weekly consumption

has slightly increase to 42 nuts from 35 nuts recorded in 2000. The percentage of households using young coconuts for human consumption has also increased from 28 per cent to 35 per cent. However, the average household consumption remains constant at ten nuts per week.

Average weekly consumption (per household) of matured and young coconuts by region:

Region	Young Coconuts	Matured Coconuts	TOTAL
Apia Urban Area	8	24	32
North West Upolu	10	57	67
Rest of Upolu	11	33	44
Savaii	10	43	53
Samoa	10	42	52

Coconut is not only used for human consumption, but also constitute a major food for animals (Pigs and Chicken). The survey recorded fifty seven percent of households using coconut for feeding animals, a similar result to that obtain from the 2000 survey (58%). Contrastly, the average weekly animal consumption has increased enormously to 160 nuts from 99 nuts per week recorded in the 2000 survey.

(B) Sales

The survey gathered information on the sale of young coconut, matured coconut and copra as with the 2000 survey.

Just two percent of agriculturally active household had sold drinking nuts in 2002 with the estimated value of last sale of SAT\$29,000.

However, about ten percent of agriculturally active household sold matured coconut with an estimated value of last sale of SAT\$587,000.

These results reflects a slight increase when compared to the 2000 survey which recorded one percent of agriculturally active households selling young coconut and seven percent selling matured coconut.

Similarly, three percent of agriculturally active household were recorded as selling copra in 2002 compared to five percent in 2000.

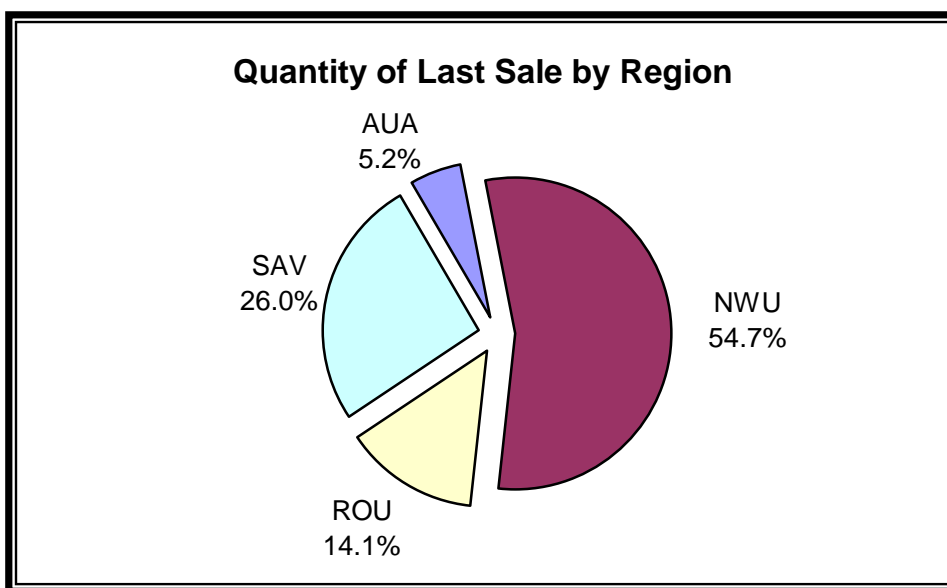
(ii) COCOA

(A) Consumption

The consumption of cocoa has increased from 47 per cent in 2000 to 53 per cent in 2002. However, average weekly consumption per household per week does not show any significant change from the 2000 survey results. Apia Urban Area region depicted the lowest average weekly consumption per household per week with only 2 cups.

(B) Sales

The survey recorded eleven percent of agriculturally active households selling Cocoa in 2002 with an estimated value of last sale of SAT\$310,000. North West Upolu Region accounted for fifty five percent of cocoa sold at the last sale.



(iii) BANANA

(A) Consumption

Banana remains a major food item in Samoa. Seventy eight percent of all Households reported consumption of banana with an average weekly consumption per household of 3 bunches. On the contrary, the 2000 survey portrayed 69 per cent of all households reported consumption of banana with an average weekly consumption per household of 2 bunches.

(B) Sales

Against consumption, only fifteen percent of agriculturally active households had sold banana with an estimated value of last sale of SAT\$453,000. Most of the banana sold are from the North West Upolu Region, accounting for fifty two percent of volume.

(iv) **TARO**

(A) Consumption

Consumption of taro has significantly increased not only by the number of households consuming it, but also on the average weekly consumption per household. The 2002 survey recorded 67 percent of households consuming taro (compared to 42 percent in 2000) and an average weekly consumption per household of 38 pieces (compared to 23 pieces in 2000).

This reflects the improvements of the blight resistant varieties and the increase in the availability of planting materials.

(B) Sales

In terms of sales, the number of households selling taro has increased to 26 percent from 12 percent in 2000. Additionally, the quantity of sale has substantially increased from about 466,000 pieces in 2000 to 692,000 in 2002. In contrast, the cost per piece has been reduced by about 18 percent. The estimated value of last sale was SAT \$2,043,000.

(v) **TARO PALAGI**

(A) Consumption

The percentage of households consuming taro palagi recorded a significant decrease from 29 percent in 2000 to 15 percent in 2002. In contrast, the average household consumption per household has increased significantly

from 2

baskets per week in 2000 to 9 baskets in 2002.

The decrease in the number of households consuming taro palagi could be explained by the increase in the number of households consuming taro, due to the increase in the availability of taro, and due to various households diverting back to consuming banana

(B) Sales

As with the consumption of taro palagi, the number of households selling them has decreased slightly from 5 per cent in 2000 to 4 per cent in 2002. The value of last sale is estimated at SAT\$126,000.

(vi) **TAAMU**

(A) Consumption

The percentage of households consuming taamu has declined from 65 per cent in 2000 to 41 percent in 2002.

However, the average weekly consumption per household has remain the same at 3 pieces.

(B) Sales

The percentage of agriculturally active households selling taamu has dropped from 13 percent to 8 percent in 2003. The estimated value of last sale was SAT\$426,000 compared to SAT\$710,000 recorded in 2000.

6. LIVESTOCK AND POULTRY

The percentage of households keeping livestock by type of livestock and region is given below.

REGION	TYPE OF LIVESTOCK		
	PIGS	BREEDING SOWS	CHICKEN
APIA URBAN AREA	25	13	43
NORTH WEST UPOLU	54	35	69
REST OF UPOLU	77	60	81
SAVAII	85	73	86

SAMOA	60	45	70
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The survey recorded some 260,000 pigs of which fifteen percent (15%) are breeding sows. This reflect an increase of about twenty nine (29%) in the number of pigs kept compared to 2000. Also, the number of chicken kept has increased by 17 percent from 440,000 to 516,000.

There were some 57,000 pigs slaughtered during 2002. Of this total, forty four percent (44%) were for faalavelave, forty six percent (46%) for consumption and the remaining ten percent (10%) were sold. On the other hand, 1,727 households reported about 11,000 pigs that were sold live compared to only 937 households in 2000 selling 3,900 live pigs.

Also from the 2002 survey, 168,000 chickens were slaughtered. Three per cent (3%) of this were sold, thirty eight per cent (38%) for faalavelave, and fifty nine per cent (59%) for consumption. Additionally, 27,000 live chickens were sold by 1,857 households in 2002 in contrast with 7,254 chickens sold by 1,148 households in 2000.

7. FISHERIES

The importance of fisheries in the Samoan economy continues to be evident. In this regard, efforts were made to collect extensive information on the sector for the first time. Also, deep water fish which was not included in the 2000 Survey was included in 2002.

Twenty five percent (25%) of households were recorded as engaged in fishing activities during the reference period (last 14 days), compared to thirty three percent (33%) recorded in the 1999 Census. One possible explanation in the difference is the difference in reference period employed during the Census and Survey.

The majority of persons engaged in fishing are males accounting for eighty six percent (86%) of the fishing population.

Some 5,700 fishing households reported catching fish during the reference period, with an estimated value of SAT\$750,000 (or SAT \$19.5m per annum), of which thirty one percent (31%) were consumed while sixty nine percent (69%) were sold or given away.

On the other hand, some 11,000 households reported buying fish during the reference period with an estimated value of SAT\$440,000, of which seventy one percent (71%) were consumed and the remaining twenty nine percent (29%) were given away or re-sold.

APPENDIX 1: DEFINITION

HOLDING: An agricultural holding is an economic unit of agricultural production under single management comprising of all livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title, legal form or size. Single management may be exercised by an individual or household, jointly by two or more individuals or households by a clan, or tribe or by a juridical person such as corporation, cooperative or government agency. The holding's land may consist of one or more parcels, located in one or more separate areas or in one or more enumeration areas, provided the parcels share the same production means utilized by the holding such as labor, farm, buildings or machinery.

PARCEL: A holding parcel is any piece of land entirely surrounded by other land, water, road, forest etc., not forming part of this holding. A parcel may consists of one or more fields adjacent to each other. In other words, a parcel is contiguous piece of land in a holding. The entire land of the holding may consist of one or more than one parcel.

HOUSEHOLD : One or more persons who live together and have their meals together.

- ❖ Just one person living on his own and looking after himself/ herself is considered a household
- ❖ Usually a household occupies one building but in a few cases two or even more households may share one building. eg: four households living in an apartment building containing four apartment
- ❖ Alternatively, one household can occupy more than one building. eg: one household using a living fale, sleeping fale, kitchen fale, and three small fales
- ❖ An Aiga is normally composed of several households