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## Laotian Agricultural Statistics

Joel Halpern, *University of Massachusetts - Amherst*



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LAOTIAN AGRICULTURAL STATISTICS

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LAOTIAN AGRICULTURAL STATISTICS

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TABLE 1

Rice Yields in Kilos per Hectare, Compared  
AnnualSwiddens (*hai*)Ethnic Group and Location

Lao-tians (all groups?) all of Laos (Table 10)  
Lamet, Nam Tha Province<sup>a</sup>

814-	3,347	(range)
	1,335	(average)
1,100	-1,670	(range)
	3,840	
	2,300	(first year)
	1,500	(second year)
	500	(third year)
	1,524	(conservative)
689-	2,488	(range)

Meo, Xieng Khouang<sup>b,1</sup>

Mountain tribes of central Vietnam<sup>c,2</sup>

Hanunoo, Philippines<sup>d</sup>

Irrigated Fields (*na*)

All of Laos (see Table 4)

932 (average)

Tai and Other Groups

Nam Tha District, Nam Tha Province<sup>e</sup>  
Muong Sing District, Nam Tha Province<sup>e</sup>  
Phong Saly District, Phong Saly Province<sup>e</sup>  
Ou Neua District, Phong Saly Province<sup>e</sup>  
Ou Tay District, Phong Saly Province<sup>e</sup>  
Boun Neua District, Phong Saly Province<sup>e</sup>

2,020	(average)
1,921	(average)
633	(average)
431	(average)
397	(average)
425	(average)

Lao

Champassak (Highest Provincial Average)  
Muong Ngoi District, Luang Prabang Province<sup>e</sup>  
Muong Sai District, Luang Prabang Province<sup>e</sup>  
Luang Prabang District,  
    Luang Prabang Province (see Table 11)  
Lao, Xieng Khouang Province<sup>b,1</sup>  
Meo, Xieng Khouang Province<sup>b,1</sup>  
Laos--Ministry of Agriculture Test Plots<sup>f</sup>  
Ubol Province, Northeast Thailand<sup>g</sup>  
Petchaboon Province, Northeast Thailand<sup>g,h</sup>  
Chieng Mai Province, North Thailand<sup>i</sup>  
Bangkok Plain<sup>j</sup>

1,231	
1,600	(average)
1,755	(average)
1,443-	2,063 (average)
1,667-	10,833 (range)
1,600-	4,500 (range)
1,700-	4,500 (range)
225-	1,125 (range)
	3,150 (average)
1,900-	3,190 (range)
	2,200

Others

Preyveng Province, Cambodia<sup>k,3</sup>  
Kratie Province, Cambodia<sup>k,3</sup>  
Average of all provinces, Cambodia<sup>k</sup>  
Indochina<sup>l</sup>  
North Vietnam<sup>m</sup>  
Dien Bien Phu (North Vietnam)<sup>m</sup>  
Theun Chao (Tai-Meo Autonomous area of  
    North Vietnam)  
Japan<sup>n,o</sup>

826	
1,889	
1,118	
1,050	(average)
2,500	(average)
3,600	(average)
3,700-	4,600 (range)
	3,535 (average)
11,000	(record yield in 1959)

NOTE: These are but rough comparisons of relative fertility since only the rice yield is considered. Many crops are grown together with rice in the *hai* fields. Conversely in certain areas such as Chieng Mai and the Bangkok region, double rice cropping is often practiced in the *na* fields.

continued next page

Table 1 continued

There is an additional problem in using these figures since it is not always clear when paddy (unhusked rice) is referred to and when milled rice is meant. The loss in the milling stage is variously calculated. In the United States a 20% loss is estimated while Duclos gives 34% and Izikowitz calculates 37% in Laos. Estimates provided the author ranged around 25%. In this table Duclos' estimate has been used to transpose paddy to rice where necessary. It should also be noted that even the term paddy itself may refer to rice.

- 1 Although within the range of possibility, Hamada's estimates appear to be high. (see Table 14)
- 2 These figures are for the first to third years of consecutive use. If the field is used again after five to seven years of lying fallow, the yield for the first year is 1,500 and for the second 750 kilos of rice per hectare.
- 3 The range of provincial averages. (see Table 16)

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Sources:

- a Izikowitz 1951:287-88
  - b Hamada 1959
  - c Lafont 1957:1
  - d Conklin 1957:119
  - e Duclos: 1959, a,b,c
  - f Lao Ministry of Agriculture
  - g Madge 1957:50
  - h Economic Survey
  - i Kingshill 1957:65
  - j Sharp 1953:163,166
  - k Statistical Yearbook of Cambodia (1937-1957), June 1958
  - l Laos monograph 1955:205
  - m Radio Hanoi broadcast, November 28, 1959
  - n Morinaga, 1957
  - o Associated Press report, January 30, 1960
-

TABLE 2

Estimates of Rice Yields per Household  
Annual

<u>Ethnic Group and Location</u>	<u>Yields in kilos</u>
	<u>Swiddens (<u>hai</u>)</u>
Khmu, Luang Prabang Province	9,600-12,000 (range of highest estimates)
	3,600 (considered a good harvest)
	1,200-2,400 (average)
Lao, Luang Prabang Province	Under 1,200 (poor yield)
	2,400-6,000 (range)
	3,600 (average)
Meo, Luang Prabang Province	3,600 (average)
Yao, Luang Prabang Province	2,400-4,800 (range)
Lamet, Nam Tha Province <sup>a</sup>	2,255-2,900 (range)
Meo, Xieng Khouang Province <sup>b</sup> (see Table 14)	9,600 (estimate)
	<u>Irrigated Fields (<u>na</u>)</u>
Lao, Luang Prabang Province	12,000 (maximum)
	2,400-6,000 (average range)
	Under 2,400 (marginal)
Lao, Luang Prabang Province (see Table 11)	1,673-2,984 (average range)
Tai, Nam Tha Province <sup>c</sup> (see Table 7)	2,855 (average)
Lao, Xieng Khouang Province <sup>b</sup>	3,600-8,700 (range)
Meo, Xieng Khouang Province <sup>b</sup>	4,000-10,000 (range)
Lao, Vientiane Province <sup>d</sup>	2,700-3,600 (average range)
Lao, Vientiane Province <sup>e</sup>	3,504 (average)
Lao, Northeast Thailand <sup>f</sup>	840-2,828 (average range)
Thai, Bangkok plain <sup>g</sup>	1,400-2,600 (range)
	11,900 (average)
	Under 5,500 (marginal)

Note: See Tables 6 and 7 particularly for additional data. In northern Laos, yields per proprietor can apparently range from 60 to 10,400 kilos.

The yields from swiddens and irrigated rice fields are not strictly comparable because many supplementary crops are raised with the rice in the swiddens, while corn is often raised in other hai fields. In addition, groups such as the Lao of Luang Prabang Province frequently cultivate both na and hai fields. As regards the na cases cited, with the exception of Luang Prabang and Nam Tha provinces, no hai fields are used. Single cropping is the rule in Laos. As in Table 1 an attempt has been made to correct unhusked rice figures.

Sources: Unless otherwise cited, the author's field data are used.

<sup>a</sup> Izikowitz 1951:288

<sup>b</sup> Hamada 1959

<sup>c</sup> Duclos 1959, a:6

<sup>d</sup> Kaufman 1956:3

<sup>e</sup> Ayabe 1959

<sup>f</sup> Madge 1957:50

<sup>g</sup> Sharp 1953:164

TABLE 3

Rice Yield Relative to the Amount of Seed Used  
Annual

<u>Ethnic Group and Location</u>	<u>Average Proportion of Seed to Yield</u>
<u>Swiddens (hai)</u>	
<u>Tai and Other Groups</u>	
Phong Saly District, Phong Saly Province <sup>a</sup>	1:15 - 20
Tai Nam Tha District, Nam Tha Province <sup>a</sup>	1:16
Tai Lu, Luang Prabang Province	1:20
<u>Lao</u>	
Muong Ngoi District, Luang Prabang <sup>b</sup>	1:38
Hmuu, Luang Prabang Province	1:20 - 50
Hanunoo, Philippines <sup>b</sup>	1:18 - 65
	1:48 (average)
<u>Irrigated Fields (na)</u>	
Tai Dam, Nam Tha Province	1:13 - 1:40
<u>Tai</u>	
Nam Tha District, Nam Tha Province <sup>a</sup>	1:20 - 60
Muong Sing District, Nam Tha Province <sup>b</sup>	1:24 (average)
	1:10 - 60
	1:26 (average)
<u>Tai and Other Groups</u>	
Phong Saly District, Phong Saly Province <sup>a</sup>	1:25 - 40
Lao, Luang Prabang Province	1:55 - 75 (maximum) 1:20 - 30 (minimum)
<u>Lao</u>	
Muong Ngoi District, Luang Prabang Province <sup>a</sup>	1:45 - 70 1:64 (average)
Tai Lu, Luang Prabang Province	1:50 - 75 (maximum) 1:25 (minimum)
Lao, Vientiane Province <sup>c</sup> Thai in Thailand <sup>d</sup>	1:20 - 28 1:50 (average)

Sources:

<sup>a</sup> Duclos 1959, a, b, c

<sup>b</sup> Conklin 1957:119

<sup>c</sup> Kaufman 1956:2

<sup>d</sup> Anuman 1955:23

TABLE 4

Production in Metric Tons of Rice  
Area Cultivated in Hectares, and Population,  
Compared in Order of Magnitude, 1954

<u>Province</u>	<u>Population</u>	<u>Production</u>	<u>Area Cultivated</u>
Savannakhet	1	3	1
Vientiane	2	2	3
Saravane	3	6	6
Luang Prabang	4	1	2
Champassak	5	5	7
Khammouane	6	4	4
Sayaboury	7	9	9
Kieng Khouang	8	8	5
Sam Neua	9	7	8
Nam Tha	10	10	11
Phong Saly	11	11	10
Total	2,000,000	619,686	665,264

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Source: Lao Ministry of Agriculture

Note: The maximum average yield per hectare is in Champassak - 1,231 kilos.

The average for all of Laos is 932. Hai areas are excluded.

No data is available for Attopeu. Since a large proportion of the population of Luang Prabang, Kieng Khouang, Sam Neua, Nam Tha, and Phong Saly provinces is composed of tribal peoples who cultivate hai, one can safely assume that the total rice production of these provinces is underestimated in the absolute sense and probably relative to the other provinces as well.

TABLE 5

Variations in Agricultural Practices and  
Food Uses (Rice and Corn) among the Meo and Yao

<u>Meo</u>			
Area	Major Food	Method of Cultivation	Source
Tonkin	Corn and rice	Irrigated and terraced fields. Plow or hoe.	Abadie: 1924, 159-160
Northern Indochina <sup>a</sup>	Corn primary, rice secondary	<u>Hai</u> with digging stick.	Roux: 1954, 391
Tonkin	Corn primary	<u>Hai</u>	Gourou: 1951, 33
Kieng Khouang	Rice primary, corn secondary for livestock	<u>Hai</u> with a few <u>na</u> .	Barney: 1957, 30-32
North Thailand	Rice primary, corn in eighth place <sup>b</sup>	Plow recently abandoned, digging stick.	Bernatzik: 1947, 357-359
Szechwan, Kweichow, and Yunnan	Corn primary, rice secondary	Plow ?	Graham: 1954, 3
Kweichow	Rice primary	Plow and flooded fields.	Mickey: 1947, 23, 29
Hunan	Corn primary, kaoliang and rice	<u>Hai</u> and <u>na</u> .	Shun-sheng and Yih-fu: 1940
<u>Yao</u>			
Vientiane	Rice staple, corn for live- stock	<u>Hai</u>	Iwata: 1960
Chiengrai	Rice staple, corn for live- stock	<u>Hai</u>	Srisvasdi: 1950

<sup>a</sup> Lai-Chau, Phong Saly, Sam Neua, Luang Prabang, Kieng Khouang, Vientiane

<sup>b</sup> After opium, sugar cane, yams, cucumbers, radishes and beans

TABLE 6  
Estimated  
Rice Production in Thirty Selected Villages, 1954  
(na fields only)

Village & Province	No. of Propri- etors	No. of Par- cels	Est. Area Prop.	No. of Culti- vated Parcel in Hec- tares	Avg. Size in Sq. Meters	Avg. Hold- ing per Meters	Yield for Village per Kilos of Rice <sup>a</sup>	Yield per Prop. Kilos of Rice <sup>b</sup>	Yield per Hec- tare Kilos of Rice <sup>b</sup>
Luang Prabang Province									
Ban Song Tay	57	1,954	34.3	66.1	338.1	1.16	95,360	1,673	1,443
Muong Khay	63	2,189	34.7	91.1	416.3	1.45	188,000	2,984	2,063
Ban Pak Sy	56	2,790	49.8	58.4	209.4	1.04	106,300	1,898	1,866
Ban Khoy	6	238	39.7	5.9	246.8	.98	13,200	2,200	2,247
Ban Paklong	13	278	21.4	7.0	252.2	.54	13,000	1,000	1,854
Total	195	7,449	-	228.8	292.5	-	415,860	-	-
Average	39	1,489	38.2	45.7	315.1	1.17	83,172	2,133	1,820
Vientiane Province									
Ban Nong Heo	40	923	23.1	56.5	611.8	1.41	66,480	1,662	1,177
Ban Hom	42	689	16.4	68.1	988.5	1.62	57,000	1,357	836
Nong Pa Nay	27	664	24.6	74.2	1,118.2	2.75	24,960	924	336
Ban Phak Khao	43	934	21.7	83.7	896.0	1.95	56,076	1,304	370
Ban Peuk	53	1,057	19.6	48.9	463.1	.92	108,600	2,049	2,218
Total	205	4,267	-	331.5	815.5	-	313,116	-	-
Average	14	853	20.8	66.3	776.8	1.62	62,623	1,527	945
Champassak Province									
Ban Luong Kham	12	443	36.9	22.6	511.0	1.88	27,600	2,300	1,219
Ban Si Kheut	21	835	39.8	37.8	453.1	1.80	44,520	2,120	1,171
Dong Thank Khonoy	35	2,251	64.3	138.9	617.2	3.97	92,440	2,641	665
Ban Khang	82	5,363	65.4	177.8	331.6	2.17	266,292	3,247	1,500
Pha Nong Khy	38	1,840	48.4	61.7	335.1	1.62	109,440	2,880	1,775
Total	188	10,732	-	438.9	449.6	-	540,292	-	-
Average	37	2,146	57.1	87.8	409.0	2.33	108,058	2,874	1,231
Savannakhet Province (Muong Champone)									
Ban Kho	61	2,142	35.1	47.5	221.6	.78	91,920	1,507	1,936
Dong Mone	109	1,927	17.7	72.7	377.3	.67	91,368	838	1,251
Ban Phay	133	4,178	31.4	141.4	338.3	1.06	92,820	698	657
Ban Nakhon	81	2,130	26.3	67.6	317.4	.83	107,292	1,325	1,587
Ban Back	124	3,800	30.6	140.1	761.2	1.13	108,000	871	771
Total	508	14,177	-	469.2	403.2	-	491,400	-	-
Average	101	2,835	27.9	93.8	331.0	.92	98,280	967	1,047
(Muong Khanthaboury)									
Kout Ka Sc	26	616	23.7	55.6	903.2	2.14	9,096	350	164
Ban Phon Ngiou	17	457	26.9	22.4	489.4	1.32	7,020	413	314
Rhang Kham	75	4,119	54.9	216.9	526.5	2.89	122,736	1,636	566
Hat Khamdy	11	443	40.3	28.2	637.3	2.56	21,996	2,000	779
Ban Veun	158	3,926	24.8	247.4	630.1	1.57	226,272	1,432	915
Total	287	9,561	-	570.9	637.3	-	387,120	-	-
Average	57	1,912	33.3	114.1	596.7	1.99	77,424	1,349	679
(Muong Sang Khone)									
Iatta Nam Thong	96	1,004	10.5	107.2	1,068.1	1.12	35,076	365	327
Iatta Khok	30	815	27.2	47.0	577.1	1.57	87,780	2,926	1,866
Kout Hi	29	464	16.0	18.4	395.7	.63	24,600	848	1,340
Muong Phong	63	1,228	19.5	82.9	674.8	1.32	14,340	228	173
Visaisong	55	1,127	20.5	136.2	1,208.9	2.48	-	?	?
Total	273	4,638	-	391.7	784.9	-	161,796	-	-
Average	54	927	17.0	78.3	844.6	1.43	32,361	742	413
GRAND TOTAL	1,656	50,624	-	2,430.2	-	-	2,309,596	-	-
30-VILLAGE AVG.	55	1,687	30.6	81.0	480.0	1.47	76,986	1,395	901.5

Source: Lao Ministry of Agriculture (See Table 18 for comparative data from Thailand) <sup>Without Ban Visaisong</sup>

<sup>a</sup>In hectares

<sup>b</sup>It is assumed that husked rice is meant

TABLE 7  
Estimated

Na Yields per Proprietor in Selected Valley Areas  
of Nam Tha, Phong Saly, and Luang Prabang Provinces

Area	Population	Houses	Proprietors*	Average Household Size	Rice Yield per Prop.
<b>Nam Tha Province</b>					
<b>Nam Tha District</b>					
Iuong Khan *	3,166	535	384	5.9	3,081
Bane Poungh *	1,009	153	143	6.3	2,374
Nam Thoung	662	107	122	6.2	1,471
Tong Om	2,942	447	431	6.6	3,205
Total	7,779	1,247	1,080	6.2	2,855
<b>Muong Sing District</b>					
Kieng Chay *	1,785	352	245	5.1	1,213
Nam Khan *	1,508	244	170	6.2	1,835
Yang Pieng	1,269	217	171	5.8	2,241
Kheo Louang	1,635	357	335	4.6	2,335
Total	6,197	1,170	921	5.3	1,927
<b>Phong Saly Province</b>					
<b>Phong Saly District</b>					
Noc Chao Lang	350	100	100	3.5	60
Khun Sue Lang	300	55	55	5.5	90
Khun Sue Noi	192	43	43	4.5	180
Phong Saly	1,234	300	300	4.1	154
Total	2,076	498	498	4.2	130
<b>Luang Prabang Province</b>					
<b>Muong Sai District</b>					
Muong Sai *	516	84	66	6.1	1,890
Na Kang	66	12	5	5.5	10,400
Na Le	177	33	33	5.4	1,301
Total	1,826	323	256	5.7	2,394

\* These villages are administrative centers and the non-farmers are officials, merchants and soldiers, causing the significant difference between the number of households and the number of proprietors

Source: Duclos: 1959

TABLE 8

## Cultivated Valley Areas in Phong Saly Province \*

<u>District</u>	<u>Population</u>	<u>Area in Hectares</u>	<u>Cultivated Land</u>	<u>Percent Cultivated</u>	<u>Avg. Yield in Kilos per Hectare of Rice</u>
Ou Neua	1,351	1,500	315	21	653
Ou Tay	1,183	1,000	200	20	602
Boun Neua	250	400	87	22	644
Total	2,764	2,900	597	21	633

\* Mai areas excluded

Source: Duclos: 1959

Note: This is one of the most marginal regions in all of Laos from the point of view of irrigated rice cultivation (here practiced mainly by the Tai Lu.)

---

TABLE 9

## Rice Production

Na and Mai Yields Compared  
Muong Noi District, Luang Prabang Province\*

<u>Village</u>	<u>Popula- tion</u>	<u>House- holds</u>	<u>No.of Na</u>	<u>No.of Mai</u>	<u>Harvest to seed ratio</u>	<u>Yield per Na in Kilos</u>	<u>Yield per Mai in Kilos</u>
Muong Noi	522	132	28	104	70	5,600	1,296
Ban Na Lo	84	14	14		50	1,600	
Ban Na Khang	70	16	5	11	45	1,080	1,312
Ban Na Tay	53	12	10	2	50	1,400	144
Total	729	174	57	117			

\* The relative size of the fields involved is not known.

Source: Duclos: 1959

Note: It is likely that the villagers combine na and mai cultivation although this is not indicated by the table.

TABLE 10  
Rice Production  
Estimated Comparative Yields from Na and Hai  
in Selected Provinces, 1956

Province & Type of Cultivation		Paddy Seed per Hectare in Kilograms	Estimated Yield in Kilos per Hectare	Ratio of Rice Yield to Seed
Champassak	<u>na</u>	34	1,376	40.5
	<u>hai</u>	23	3,347	14.6
Saravane	<u>na</u>	22	987	44.9
	<u>hai</u>	66	1,139	17.3
Savannakhet	<u>na</u>	44	1,168	26.5
	<u>hai</u>	37	931	25.2
Khammouane	<u>na</u>	70	950	13.6
	<u>hai</u>	36	814	22.6
Vientiane	<u>na</u>	62	1,593	25.7
	<u>hai</u>	63	1,710	27.1
Luang Prabang	<u>na</u>	96	1,252	13.0
	<u>hai</u>	27	1,756	65.0

Source: Lao Ministry of Agriculture

TABLE 11  
Production of Rice per Proprietor (in Kilos)  
in Two Villages of Luang Prabang District, 1954

Village Paddy Production	Muong Khay, Tasseng Muong Khay		Song Tay, Tasseng Pak Lung	
	Number of Prop.	Percent of Total	Number of Prop.	Percent of Total
200 - 499	1	1.6	7	12.3
500 - 999	3	4.8	17	29.8
1000 - 1499	3	4.8	4	7.0
1500 - 1999	6	9.5	6	10.5
2000 - 2499	7	11.1	10	17.5
2500 - 2999	10	15.9	2	3.5
3000 - 3499	15	23.8	4	7.0
3500 - 3999	6	9.5	2	3.5
4000 - 4999	6	9.5	3	5.3
5000 - 5999	1	1.6	1	1.8
6000	2	3.2	1	1.8
7000	1	1.6		
8000	1	1.6		
12,000	1	1.6		
Total	63	100.1	57	100.0

Source: Lao Ministry of Agriculture

Note: In Song Tay the average yield per proprietor is 1,673 kilos; per hectare 1,443; and 2,984 and 2,063 respectively in Muong Kay. Hai fields are not included in Tables 11-13.

TABLE 12

LAND HOLDINGS IN LAO VILLAGES OF MUONG KHAY  
AND SONG TAY (LUANG PRABANG DISTRICT), 1954

<u>Hectares</u>	Muong Khay, Tasseng Muong Khay		Song Tay, Tasseng Pak Lung	
	<u>Number of Proprietors</u>	<u>Percent of Total</u>	<u>Number of Proprietors</u>	<u>Percent of Total</u>
0 - .49	1	1.6	1	1.8
.50 - .99	9	14.3	20	35.1
1.00 - 1.49	32	50.8	23	40.4
1.50 - 1.99	6	9.5	7	12.3
2.00 - 2.49	11	17.5	6	10.5
2.50 - 2.99	3	4.8		
8.00 +	<u>1</u>	<u>1.6</u>		
Total	63	100.1	57	100.1

Source: Lao Ministry of Agriculture.

Note: There are, on the average, 1.16 hectares of land per proprietor in Song Tay, and 1.45 in Muong Khay. In 1958 there were 83 houses and 414 people in Muong Khay and 88 and 406 respectively in Song Tay. By comparison in Bang Chan (near Bangkok) 14% of the farms are over 10 hectares (Table 18).

TABLE 13

## NUMBER OF PARCELS OF LAND PER PROPRIETOR FOR TWO LAO VILLAGES IN LUANG PRABANG PROVINCE

<u>Number of Parcels</u>	Muong Khay		Song Tay	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Ten and under				
11 - 20	10	15.9	12	21.1
21 - 30	25	39.7	18	31.6
31 - 40	12	19.0	11	19.3
41 - 50	8	12.7	9	15.8
51 - 60	5	7.9	6	10.5
61 - 70	1	1.6	1	1.8
71 - 80	-	-	-	-
81 - 90	1	1.6	-	-
91 - 100	-	-	-	-
101 and over	<u>1</u>	<u>1.6</u>	-	-
Total	63	100.0	57	100.1

Source: Lao Ministry of Agriculture.

Note: The average number of parcels per proprietor in Song Tay is 34.3; for Muong Khay it is 34.7.

TABLE 14

AGRICULTURE IN XIENG KHOUANG PROVINCE, 1957  
(DATA ON FOUR LAO AND THREE MIAO HOUSEHOLDS)

	Lao				Miao			
Initials and Age of Household Head	PP	XK	H	CX	VC	EP	CH	
	56	47	51	41	35	20	31	
Village	Ban Ma Soi	-	Ban Hui	-	Ban Phia Wat	-	-	
Location	environs of Xieng Khouang town				near town	in mts. south of Xieng Khouang plateau		
Total family members	9	11	5	6	8 <sup>a</sup>	4 <sup>a</sup>	15 <sup>a</sup>	
Hectares of cultivated land	3	1.2	1	5	2	2.5	2.5	
Rice production (in metric tons)	5 <sup>b</sup>	13 <sup>b</sup>	3.6 <sup>c</sup>	10	9	9.6	4	
Corn production (in metric tons)	-	-	-	-	1.5 <sup>d</sup>	1 <sup>d</sup>	-	
Opium, in kilos	-	-	-	-	8	3-4	-	
Types of fruit trees	1	6	-	2	-	1	-	
Horses	-	-	-	-	3	1	5	
Buffalo	6	7	8	-	12	11	18	
Pigs	2	2	1	6	6	7	1	
Goats	-	-	-	-	20	-	9	
Chickens	5	5	15	40	10	50	5	
Ducks	5	10	5	15	-	-	-	

Source: "Lao and Miao Farming on the Xieng Khouang Plateau," Hideo Hamada, Japanese Journal of Ethnology, Vol. 23, Nos. 1-2, 1959.

<sup>a</sup>These are all hai fields.

<sup>b</sup>Glutinous as well as non-glutinous varieties are grown, with green manure and buffalo dung used as fertilizers.

<sup>c</sup>H used only animal manure, cultivates four varieties of glutinous rice and marketed 1 ton of rice.

<sup>d</sup>Corn is raised as a supplementary food and livestock feed. It is cultivated in hai fields in most cases.

TABLE 15  
IMPORT OF RICE IN LAOS

<u>Year</u>	<u>Metric Tons</u>	<u>Value in Kips</u>
1950	78	145,000
1951	47	158,000
1952	857	338,000
1953	2,506	14,025,000
1954	6,949	42,211,000
1955	15,590	72,624,000
1956	24,251	115,000,000
1957*	15,000	-
1958*	20,000	-
1959*	5,000	-

Notes: This rice came mainly from Thailand and was primarily of the glutinous variety. In 1958 Laos produced an estimated 540,000 tons of rice.

Source: Lao Customs Service.

\*Estimates

TABLE 16  
RICE ACREAGE AND PRODUCTION IN CAMBODIA'S PROVINCES 1956-1957

<u>Province</u>	<u>Area Harvested in Hectares</u>	<u>Production in Metric Tons 000</u>	<u>Yield Per Hectare</u>
Battambang	141,000	161	1,141
Pursat	37,000	52	1,405
Kompong Chhnang	47,000	61	1,298
Kompong Cham	128,000	197	1,539
Kompong Thom	79,000	79	1,000
Kandal	82,000	117	1,427
Kampong Speu	84,000	116	1,381
Takeo	145,000	161	1,110
Kampot	91,000	82	901
Preyveng	207,000	171	826
Scairieng	132,000	113	856
Kratie	9,000	17	1,889
Siemreap	44,000	45	1,023
Strungtreng	8,000	7	875
Total	1,234,000	1,379,000	1,118

Source: Statistical Yearbook of Cambodia (1937-1957), June 1958.

TABLE 17  
RICE PRODUCTION IN THAILAND (1947 - 1955)

<u>Year</u>	<u>Cultivated Area in Hectares</u>	<u>Harvested Area in Hectares</u>	<u>Paddy Yield in Metric Tons</u>	<u>Average Yield in Kilo per Hectare</u>
1947	4,825,005	4,304,143	5,506,432	1,279
1948	5,211,749	4,929,905	6,835,173	1,386
1949	5,268,216	4,962,584	6,683,760	1,347
1950	5,539,980	5,294,625	6,781,615	1,281
1951	5,959,259	5,736,208	7,325,396	1,277
1952	5,368,121	5,130,208	6,602,089	1,287
1953	6,171,933	5,930,848	8,239,402	1,389
1954	5,557,154	4,523,861	5,708,998	1,262
1955	5,769,573	5,375,674	7,333,611	1,364

Source: Thailand Past and Present, p. 148.

TABLE 18

## RICE HARVESTS BY 104 HOUSEHOLDS IN BANG CHAN, THAILAND (NEAR BANGKOK)

<u>Area in Hectares</u>	<u>Number of Farms</u>	<u>Total Yield in Each Category</u>	<u>Average Yield per Hectare</u>	<u>Average Harvest per Household in Kilos</u>
Under 2.4	17	60,126	2175	3537
2.4 - under 4.8	34	264,682	2263	7785
4.8 - " 7.2	27	331,155	2131	12,265
7.2 - " 9.6	11	177,474	2056	16,143
9.6 - " 12.0	8	171,886	2106	21,486
12.0 - " 14.4	5	154,077	2356	30,815
14.4 - " 16.8	1	38,555	2675	38,555
16 - 8	1	39,600	2250	39,600
Total	104	1,236,565	2192	11,890

Note: The average farm size, where all the land is in use, is 5.4 hectares, compared to 1.2 and 1.5 hectares for farms in Luang Prabang district.

Source: Sharp 1953:163, Table XIX.

TABLE 19

## RICE CONSUMPTION

## AREAS HARVESTED BY 69 FARMING HOUSEHOLDS IN PAO-AO, NORTHEAST THAILAND (1953)

<u>Area in Hectares</u>	<u>Number of Households</u>	<u>Average Household Composing</u>	<u>Kilograms of Rice per Household</u>	<u>Kilograms per Equivalent Adult</u>
		Adults	Children	Total
to 2.3	14	3	2.5	5.25
2.4 - 3.9	17	4	2	6
4 - 5.5	25	4.75	2.25	7
5.6+	13	6	3.5	9.5

Source: Madge

Note: Based on Duclos data from Nam Tha gives a range of 124 to 592 kilos per capita. Taking the children into account this would indicate that the poorest areas of Thailand are considerably better off than certain areas in northern Laos, at least as far as the valley dwellers are concerned. Unfortunately comparative data on other food crops is lacking so we cannot get a comprehensive picture of food resources.

**TABLE 20**  
SOME EXAMPLES OF LIVESTOCK SACRIFICE AMONG THE PEOPLES OF NORTHERN LAOS\*

<u>Ethnic Group</u>	<u>Occasion</u>	<u>Animal Sacrificed</u>
Lao	To appease "house," village or field spirits	CHICKEN
	Harvest festival "to glorify the soul of the rice" and other agricultural ceremonies	Buffalo, ox, chicken
Iao, Khmu, Tai	Buffalo sacrifice early in rainy season, common to many peoples in Southeast Asia	Buffalo
Black Tai	To "God of the Soil" at planting time	Buffalo, pig, duck, or chicken
	Harvest festival to honor the "God of the Soil"	Buffalo
	Funeral	First day--duck Second day--chicken
Khmu	To honor their "messiah" who will bring a promised new life	Pigs and chickens
	Illness	Chicken
	Death	All animals of the deceased for the funeral feast
	Spirit of the village	Pig, ox, chicken
Kha Ko (Akha)	For a pregnant woman to bear a boy	Chicken
	To offset the bad effect of twins or defective children	Goat or dog
	Death--offerings for the soul depends on sex and status	Ox, goat, dog, pig
Iamet	Marriage	Roosters or pig
	To aid in conception, when pregnancy is ascertained and when first child is born	Pig
	Illness, particularly of head of household	Buffalo or pig
	Before a funeral procession	Several pigs
Meo	To get rid of evil <u>phi</u>	Varies
	Illness "due to bad <u>phi</u> "	Cow or lesser livestock
	Death: for each day corpse remains in the house	Chicken, or preferably pig
	Death: every child of deceased, on day before burial	"At least one cow"
	If <u>phi</u> of deceased parents come to visit and ask for food	"Depends on wishes of the <u>phi</u> "
	To <u>phi</u> of the house, if girl's parents discover daughter sleeping with a boy	Pig or dog
	To <u>phi</u> of silver bars, to increase household's wealth in silver	Chicken

\*All Iamet examples are from Izikowitz (1951); others are from personal field notes, unless otherwise noted. Black Tai examples are from Hickey, Akha cases from Srisvasdi. Only selected illustrations are presented.

TABLE 21

LIVESTOCK IN NAM THA AND MUONG SING DISTRICTS OF NAM THA PROVINCE<sup>a</sup>

Tasseng	Proprie-tors	Buffalo	Per Pro-prietor	Cattle	Per Pro-prietor	Horses	Per Pro-prietor	Pigs	Per price
<b>Nam Tha</b>									
Luang Khon <sup>b</sup>	384	553	1.4	278	.72	55	.14	287	1.
Ban Poun <sup>b</sup>	143	416	2.9	84	.59	12	.08	585	4
Nam Thoung	122	306	2.5	206	1.7	51	.42	415	3
Tong Om <sup>b</sup>	431	1,207	2.8	510	1.2	241	.56	1,917	4
<b>Muong Sing</b>									
Kieng Chay	245	435	1.8	224	.91	54	.22	334	1
Na Kham	170	310	1.8	363	2.1	28	.16	183	1
Yang Pieng	171	514	3.0	651	3.8	65	.38	266	1
Kheo Louang	335	647	1.9	731	2.2	68	.20	482	1

<sup>a</sup>The inhabitants of these tassengs are mostly Tai peoples, e.g. Lu and Tai Dam.

<sup>b</sup>Exclusively Tai Dam.

Source: Duclos:1959.

Note: Ayabe investigated 83 out of the 88 households in Ban Pha Khao near Vientiane and found that they averaged 1.6 buffalo, .7 cows, and 1.0 pigs per household. Sixty homes kept water buffalo, but only 26 had cattle.

TABLE 22

## LIVESTOCK IN LAOS

Year	Cattle	Buffalo	Pigs
1940	250,000	300,000	250,000
1950	95,800	155,100	127,800
1951	95,500	186,303	128,718
1952	179,225	101,547	156,022
1960	246,000	177,400	177,400

Sources: 1940-1952 data from Plan de Developpement, p. 13; 1960 data from Notes on the Agricultural Economics of the Far East, U. S. Department of Agriculture, p. 20.