

สำมะโนการเกษตร พ.ศ. 2546

ภาคตะวันออกเฉียงเหนือ

2003 AGRICULTURAL CENSUS

NORTHEASTERN REGION



สำนักงานสถิติแห่งชาติ

NATIONAL STATISTICAL OFFICE

กระทรวงเทคโนโลยีสารสนเทศและการสื่อสาร

MINISTRY OF INFORMATION AND COMMUNICATION TECHNOLOGY

## PREFACE

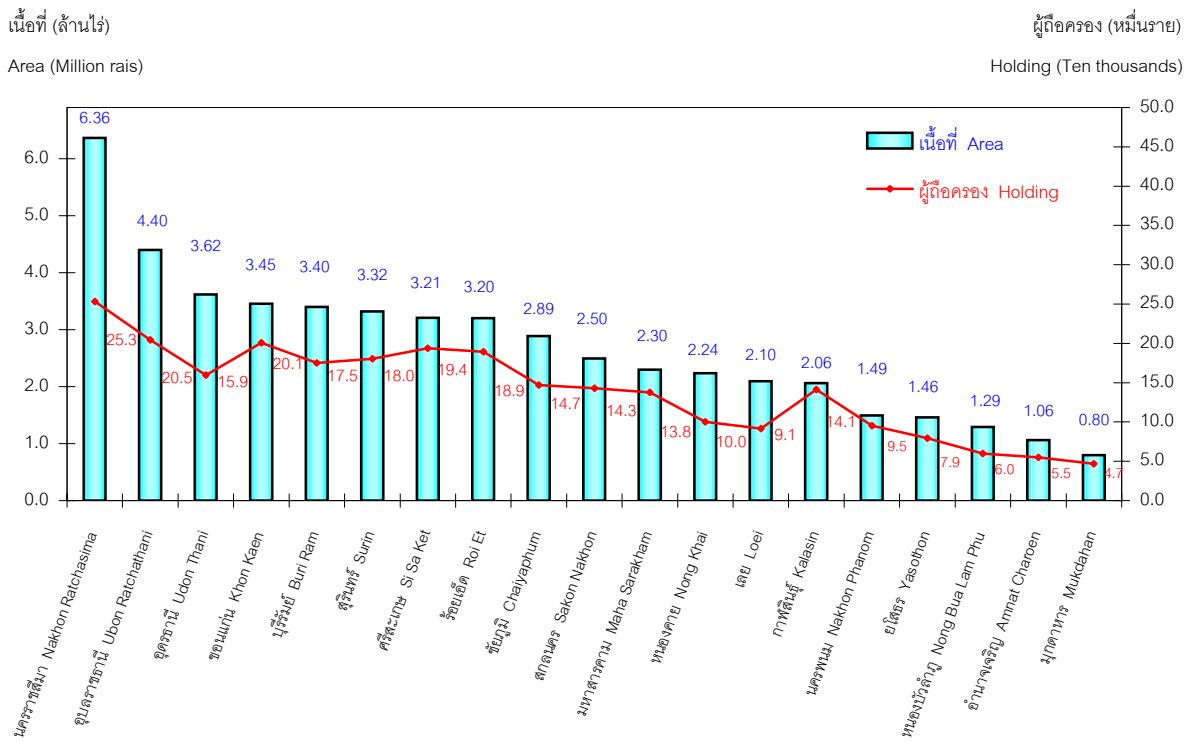
The National Statistical Office conducted the Fifth Agricultural Census in 2003 in order to collect the data on agricultural structure. The results obtained from the census are essential for both national and local policy-making, monitoring and evaluation of the agricultural development projects.

Preliminary report and advanced report of the 2003 Agricultural Census have been released. This report is one in the series of the final report in which the data by provinces, regions and the whole kingdom are presented.

**National Statistical Office**  
**Ministry of Information and Communication Technology**

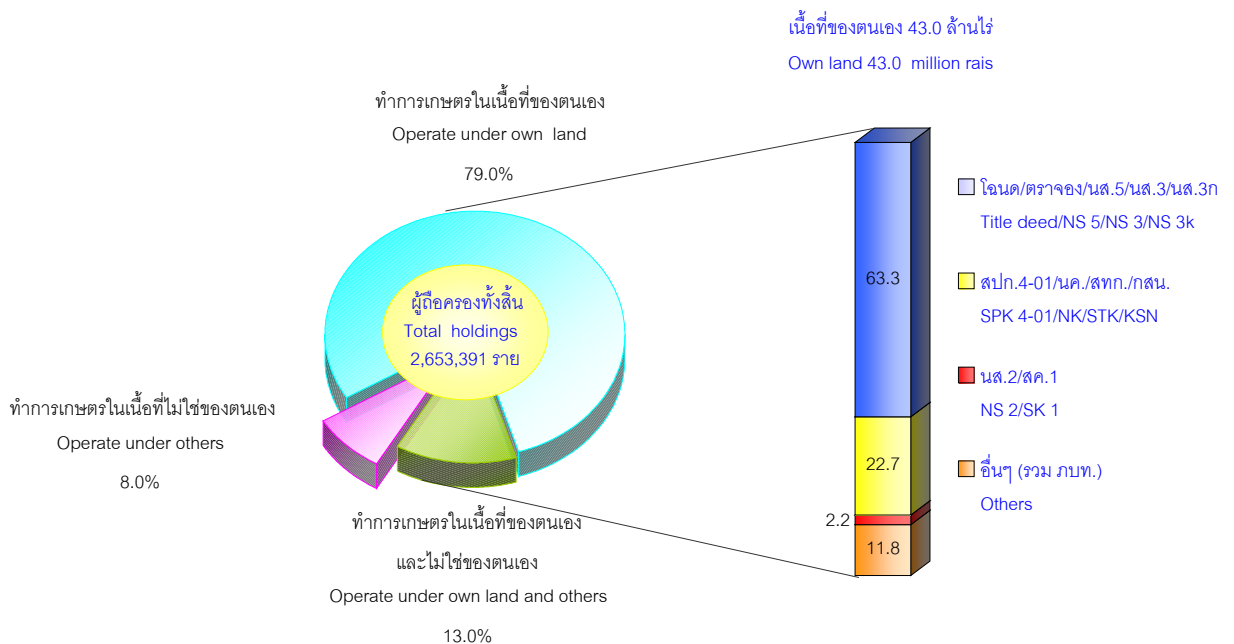
แผนภูมิ 1 จำนวนผู้ถือครอง และเนื้อที่ถือครองทำการเกษตร รายจังหวัด

Figure 1 Number and area of holdings by province



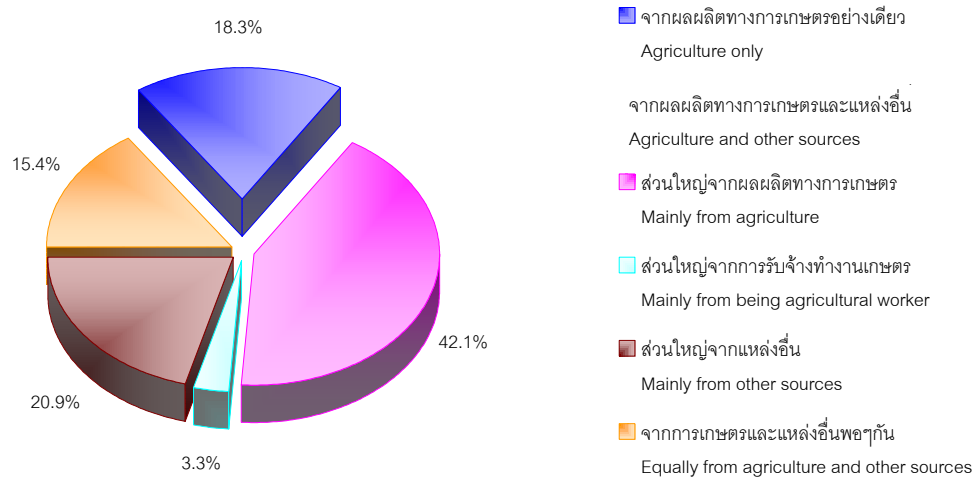
แผนภูมิ 2 จำนวนผู้ถือครองทำการเกษตร จำแนกตามลักษณะการถือครองที่ดิน และเนื้อที่ถือครองของตนเอง จำแนกตามเอกสารสิทธิ์

Figure 2 Number of holdings by land tenure and area owned by documentary of right



แผนภูมิ 3 จำนวนผู้ถือครองทำการเกษตร จำแนกตามแหล่งที่มาของรายได้ของครัวเรือน

Figure 3 Number of holdings by source of household income



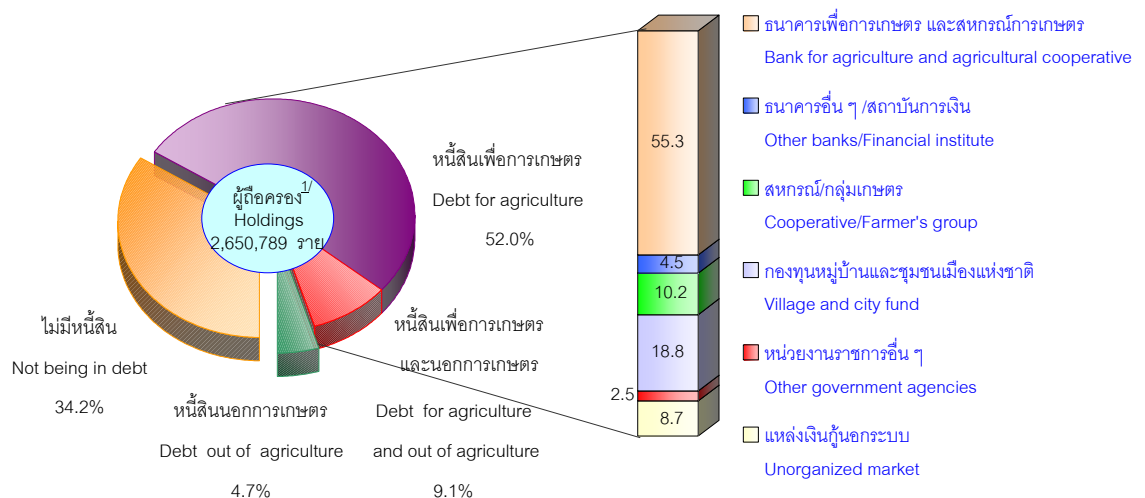
แผนภูมิ 4 จำนวนผู้ถือครองทำการเกษตร จำแนกตามการมีหนี้สินของครัวเรือน

และจำนวนเงินที่เป็นหนี้เพื่อการเกษตร จำแนกตามแหล่งเงินกู้

Figure 4 Number of holdings being in debt of household and amount of debt for agriculture by source of loan

จำนวนเงินที่เป็นหนี้เพื่อการเกษตร 73,014 ล้านบาท

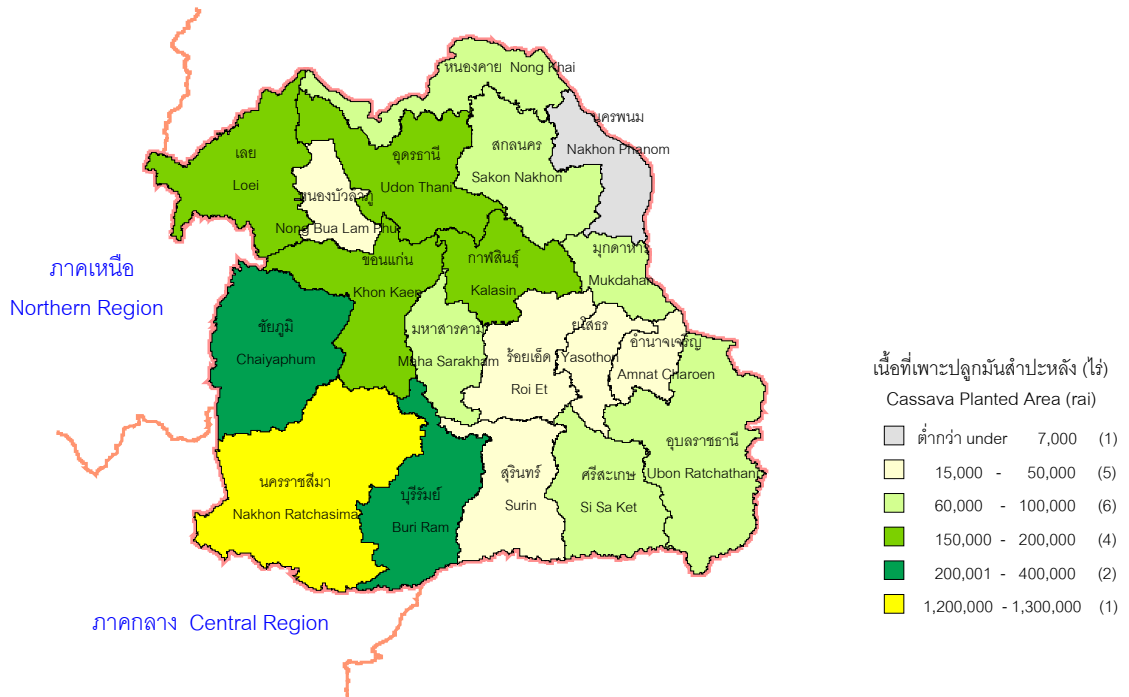
Amount of debt for agriculture 73,014 million baht



<sup>1/</sup> ไม่รวม บริษัท ห้างหุ้นส่วนนิติบุคคล  
Excluding corporation

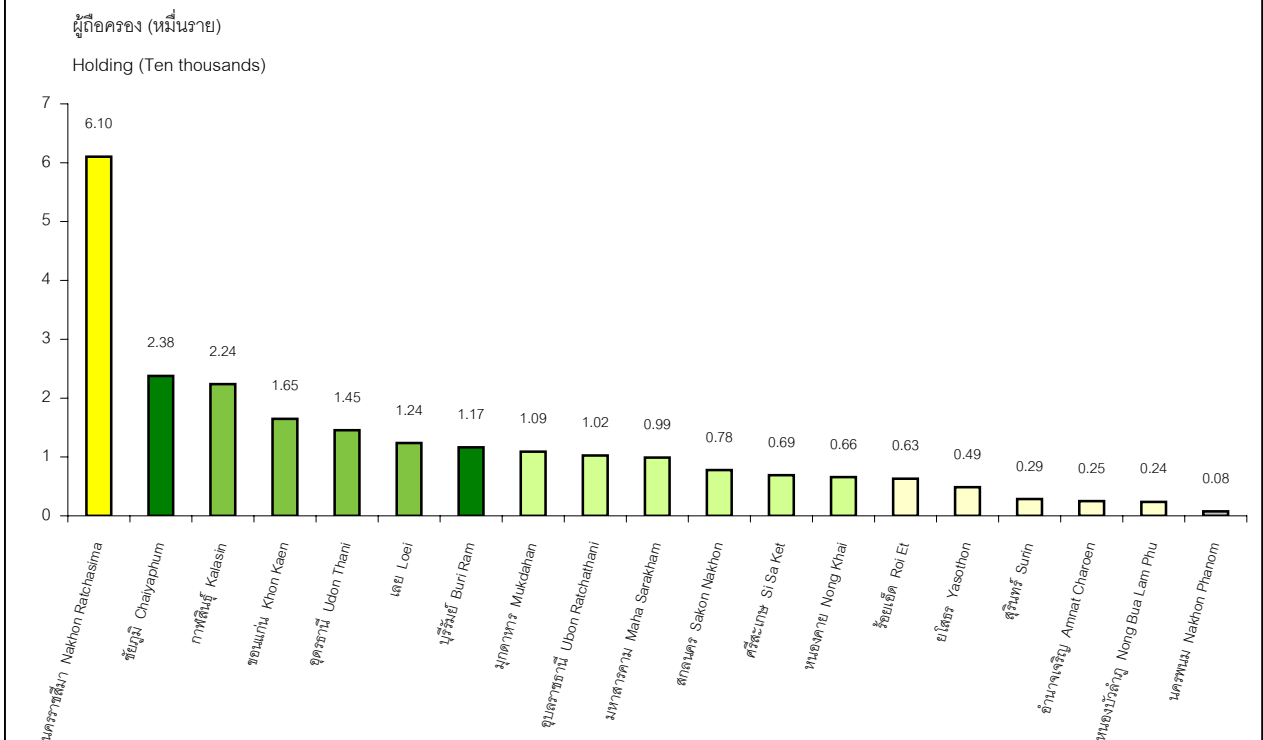
แผนภูมิ 5 เนื้อที่เพาะปลูกมันสำปะหลัง รายจังหวัด

Figure 5 Cassava : Planted area by province



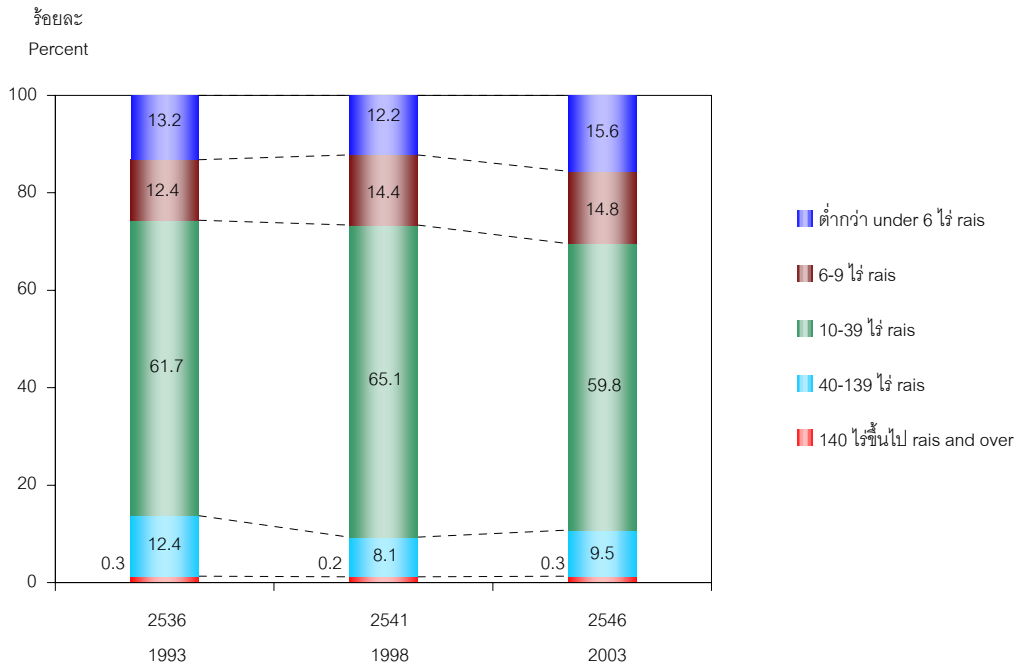
แผนภูมิ 6 จำนวนผู้ถือครองที่ปลูกมันสำปะหลัง รายจังหวัด

Figure 6 Cassava : Number of holdings by province



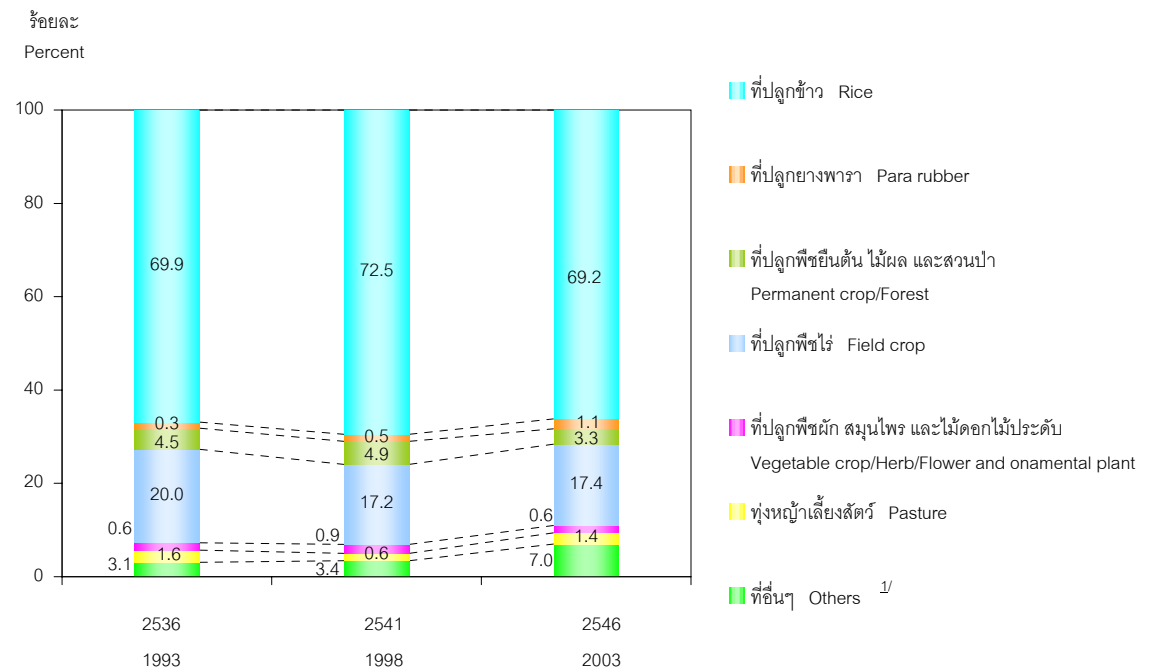
แผนภูมิ 7 จำนวนผู้ถือครองทำการเกษตร จำแนกตามขนาดเนื้อที่ถือครองทั้งสิ้น

Figure 7 Number of holdings by size of area of holding



แผนภูมิ 8 เนื้อที่ถือครองทำการเกษตร จำแนกตามการใช้ประโยชน์ที่ดิน

Figure 8 Area of holding by land use



<sup>1/</sup> ปี 2546 รวมเนื้อที่เพาะเลี้ยงสัตว์น้ำในพื้นที่น้ำจืด (0.6%)  
In 2003, including fresh water culture area (0.6%)

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

The National Statistical Office conducted the First Agricultural Census in 1950, the Second in 1963, the Third in 1978 and the Fourth in 1993. To obtain timely statistics of agricultural structure data for policy-making, monitoring and evaluation of the agricultural development projects and in accordance with the recommendations of the Food and Agriculture Organization of the United Nations (FAO), the Fifth Agricultural Census was thus conducted in 2003.

### 1.2 Objective

The objectives of the agricultural census were as follows:

1. To collect data on agricultural structures such as number and area of holdings, land use, land tenure, planted area of crops, number of inland fishery establishments, water area under fresh water culture, number of livestock, the use of fertilizer and pesticide, machinery and equipment, etc.
2. To provide data for small administrative units.
3. To provide a frame for other agricultural surveys.
4. To study changes of agricultural structures in 10 years.

### 1.3 Coverage

The 2003 Agricultural Census covered all holdings which agricultural activity were cultivating crops, rearing livestock and culturing fresh water.

### 1.4 Definitions

#### 1. Holding

A holding is an economic unit of agricultural production (cultivating crops, rearing livestock and culturing fresh water) under single management comprising all livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title or legal form. The holding's land may consist of one or more parcels, located in one or more separate areas of the same province.

## 2. Holder

A holder refers to a civil or juridical person who exercises management control and takes major decisions over the agricultural holding operation. The holder has technical and economic responsibility for the holding and may undertake all responsibilities directly, or delegate responsibilities to a hired manager. A hired manager participating in economic and financial responsibilities in addition to managing the holding is considered a holder.

## 3. Area of Holding

Area of holding is the combined area of all the holding's parcels in the province, including land owned by the holder, rented from others and land under other tenure forms. (Land owned by the holder but rented to others are excluded).

The holding area includes farmyard, land occupied by farm buildings and holder's house located on the holding.

## 4. Land Tenure

This refers to the arrangements or rights under which the holder holds or uses holding land. A holding may be operated under one or more tenure forms as follows:

### 1) **Owned** : A holder is considered an owner of a piece of land if

(1) he, according to the law, has a full right in it, i.e. he possesses a land certificate such as title deed, NS 3, SK 1 which is issued by the authority concerned, he may have the right on the land which is resulted by the law or he may possess some certificates, according to the Land Reform Act, which legally permits him to operate the land; or

(2) he occupies and cultivates the land as if he were the owner as in the case of inheritance pending documentary evidence or pending the separation of the title deeds or other important documents; or

(3) he has occupied and cultivated the land continually without any resistance for 10 years and over.

2) **Rented** : A renter is one who rents the land from another person for agricultural operation and he has to pay rents to the land owner by cash or crop product.

3) **Mortgage** : A contract whereby a person, called the mortgagor, assigns a property to another person, called the mortgagee, as security for the performance of an obligation, without delivering the property to the mortgage.



4) **Sale with right of redemption** : A contract of sale whereby the ownership of the property sold passes to the buyer subject to an agreement that the seller can redeem that property.

5) **Others** : this refers to all types of tenure not covered by above forms.

#### 4. The Census Day

This refers to May 1, 2003.

CHAPTER 2  
CENSUS METHODOLOGY AND DATA PROCESSING

2.1 Census Methodology

A combination of complete and sample enumeration was applied for the 2003 Agricultural Census. In this method, the questionnaire was divided into two parts. The first part was used for collecting data on basic agricultural structure from all holdings whereas the second part was used for collecting other agricultural structure data from a 25% sample of holdings.

2.2 Method of Estimation

The estimate of the total number of each characteristic of holdings from the enumeration form was based on the formula :

- Province level

$$\hat{X}_{hi} = \sum_{j=1}^{m_{hi}} \sum_{k=1}^8 \frac{N_{hijk}}{n_{hijk}} \sum_{l=1}^{n_{hijk}} x_{hijkl}$$

Where  $x_{hijkl}$  is the number of characteristic X of the  $l^{th}$  sample holder,  $k^{th}$  size of total area of holding,  $j^{th}$  amphoe,  $i^{th}$  province,  $h^{th}$  region.

$N_{hijk}$  is the total number of holders of the  $k^{th}$  size of total area of holding,  $j^{th}$  amphoe,  $i^{th}$  province,  $h^{th}$  region.

$n_{hijk}$  is the total number of sample holders of the  $k^{th}$  size of total area of holding,  $j^{th}$  amphoe,  $i^{th}$  province,  $h^{th}$  region.

$m_{hi}$  is the total number of amphoes in the  $i^{th}$  province,  $h^{th}$  region.

- Region level

$$\hat{X}_h = \sum_{i=1}^{A_h} \hat{X}_{hi}$$

Where  $A_h$  is the total number of provinces in the  $h^{th}$  region.

### 2.3 Data Collection

The face to face interview was the method of data collection for the 2003 Agricultural Census. The field work was carried out during May 13 to June 10, 2003. Around 25,000 enumerators were recruited from village health volunteers and 5,000 supervisors were recruited from local officer of Department of Agricultural Extension. The enumerators were sent out to interview all head of households using listing form to find out agricultural holders. Approximately 5.8 million agricultural holders were interviewed for detailed information using enumeration form subsequently.

### 2.4 Census Items

The data collected in the 2003 Agricultural Census are as follows :

- 1) Activity and legal status
- 2) Holding area by land use, land tenure and documentary of right
- 3) Livestock
- 4) Rice
- 5) Para rubber
- 6) Permanent crop and forest (planted)
- 7) Field crop
- 8) Vegetable crop, herb, flower and ornamental plant
- 9) Fresh water culture
- 10) Fertilizer and pesticide
- 11) Employment on holding
- 12) Machinery and equipment
- 13) Holder household's members and activity status
- 14) Education and membership of agricultural activity groups
- 15) Income and debt for agriculture of holder's household

Note ; Item 1) - 9) are basic agricultural structure data

Item 10) - 15) are other agricultural structure data

## 2.5 Data Processing

All filled questionnaires which had already been edited during the field operation were again examined by manual editing for completeness and consistency for all items in questionnaires including coding process for some items before sending to the central office. Then, all information was entered by image scanning system (ICR and OMR)<sup>1/</sup>. Before tabulation were prepared, all raw data were edited by computer for final review and correction to ensure that data were all clean for further tabulation.

Publication of the census results are presented in three series ; Changwat, Region and Whole Kingdom.

## 2.6 Post Enumeration Survey

In July 2003, after the conclusion of census field work, a Post Enumeration Survey was carried out in order to evaluate the quality of the data by selecting 4% of the total enumeration areas. All enumerators were regular field staff officers of the National Statistical Office.

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<sup>1/</sup> ICR = Intelligence Characters Recognition

OMR = Optical Mark Reader

## CHAPTER 3

### SUMMARY OF FINDINGS

#### 1. Number and Area of Holdings

The 2003 Agricultural Census show that the total number of holdings in the Northeastern Region was 2.7 million. Changwat Nakhon Ratchasima occupied the largest number of holdings with 253,111 (9.5%). It was followed by Changwat Ubon Ratchathani, Khon Kaen, Si Sa Ket and Roi Et (7.7, 7.6, 7.3 and 7.1% respectively) and Mukdahan had the smallest number of holdings with 47,007 (1.8%)

With the total area of holding of around 51.1 million rais,<sup>1/</sup> or about 16.0% of the total area of the country.<sup>2/</sup> For the provincial area, Changwat Nakhon Ratchasima occupied the largest area of holding with 6.4 million rais (12.5%), followed by Changwat Ubon Ratchathani, Udon Thani, Khon Kaen and Buri Ram with 8.6, 7.1, 6.8 and 6.7% respectively and the smallest area was in Changwat Mukdahan (1.6%). The average area per holding of the Northeastern Region was 19.3 rais, it showed a gradual decrease from 21.3 and 19.8 rais in 1993 and 1998 respectively.<sup>3/</sup> The holding in Changwat Nakhon Ratchasima had the largest average area of 25.2 rais, and the smallest average area was in Changwat Kalasin with 14.6 rais. (Figure 1)

#### 2. Some Characteristics of Holdings

##### 2.1 Size of Total Area of Holding

In the Northeastern Region, the number of holdings having an area under 10 - 39 rais constituted 59.8% and 15.6% were the holdings with area under 6 rais, while the largest size (140 rais and over) had only 0.3%.

From 1998 to 2003 the number of holdings in the Northeastern Region increased by 64,037 (2.5%). Especially the number of holdings with under 6 rais which increased by 99,166 (31.4%). (Table 1)

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<sup>1/</sup> 1 rai = 1,600 square meters.

<sup>2/</sup> Total area of Thailand is 320.7 million rais. (Royal Thai Survey Department).

<sup>3/</sup> The 1993 Agricultural Census, the 1998 Intercensal Survey of Agriculture. (National Statistical Office).

Table 1 Number of Holdings by Size of Total Area of Holding

Size of total area of holding (rai)	Number of holdings			Percent			Percentage of change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>Total</b>	<b>2,505,936</b>	<b>2,589,354</b>	<b>2,653,391</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>3.3</b>	<b>2.5</b>
Under 6	330,115	315,846	415,012	13.2	12.2	15.6	-4.3	31.4
6 – 9	312,091	372,310	393,074	12.4	14.4	14.8	19.3	5.6
10 – 39	1,545,488	1,685,690	1,586,188	61.7	65.1	59.8	9.1	-5.9
40 – 139	311,441	211,174	252,561	12.4	8.1	9.5	-32.2	19.6
140 and over	6,801	4,334	6,556	0.3	0.2	0.3	-36.3	51.3

## 2.2 Land Tenure and Documentary of Right

As regards the land tenure, it was found that the majority of holdings operated under own land only (79.0%), 13.0% of the holdings operated not only under own land but also under other land and 8.0% of the holdings operated under other land. It was observed that the number of holdings of other land increased from 1998. For the documentary of right, the data show that most of the holdings with own land had Title deed, NS 5, NS 3, NS 3k (74.8%). (Table 2)

Table 2 Number of Holdings with Land by Land Tenure and Documentary of Right

Item	Number of holdings			Percent			Percentage of change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>Number of holdings with land</b>	<b>2,505,936</b>	<b>2,588,980</b>	<b>2,652,750</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>3.3</b>	<b>2.5</b>
<b>By land tenure</b>								
Own land	2,143,320	2,304,231	2,095,667	85.5	89.0	79.0	7.5	-9.1
Others	198,466	98,081	213,352	7.9	3.8	8.0	-50.6	117.5
Own land and others	164,150	186,668	343,731	6.6	7.2	13.0	13.7	84.1
<b>By documentary of right <sup>1/</sup></b> (own land only)								
Title deed/ NS5/ NS3/ NS3k			1,823,514			74.8		
SPK 4-01/ NK/ STK/ KSN			504,746			20.7		
NS2/ SK1			66,822			2.7		
Others			351,311			14.4		

<sup>1/</sup> One holding may report more than one type of documentary of right.

In 1993 and 1998, no question about documentary of right in the questionnaire.

### 3. Area of Holding by Land Use, Land Tenure and Documentary of Right

The total area of holding in the Northeastern Region was 51.1 million rais. Of these, the major portion (69.2%) was the area under rice, followed by field crop (17.4%), while permanent crop / forest and para rubber had only 3.3 and 1.1% respectively.

From 1998 to 2003 the total area of holding in the Northeastern Region decreased by 108,648 rais (0.2%). Of which decreased in the area under rice, permanent crop / forest and vegetable crop / herb / flower and ornamental plant, while the area under para rubber and pasture had a gradual increase. Considering land tenure, it was found that the major portion (84.1%) was the area owned by the holder which most of them had Title deed, NS 5, NS 3, NS 3k (63.3%). (Table 3)

Table 3 Area of Holding by Land Use, Land Tenure and Documentary of Right

Item	Area (rai)			Percent			Percentage of Change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>Total area of holding</b>	<b>53,321,488</b>	<b>51,254,955</b>	<b>51,146,307</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>-3.9</b>	<b>-0.2</b>
<b>By land use</b>								
Rice	37,292,983	37,168,146	35,418,393	69.9	72.5	69.2	-0.3	-4.7
Para rubber	177,731	276,412	559,639	0.3	0.5	1.1	55.5	102.5
Permanent crop / Forest	2,395,329	2,529,186	1,676,404	4.5	4.9	3.3	5.6	-33.7
Field crop	10,655,442	8,794,724	8,882,616	20.0	17.2	17.4	-17.5	1.0
Vegetable crop / Herb / Flower and Ornamental plant	318,413	479,381	334,204	0.6	0.9	0.6	50.6	-30.3
Pasture	851,734	276,647	706,833	1.6	0.6	1.4	-67.5	155.5
Fresh water culture <sup>1/</sup>			310,445			0.6		
Others	1,629,856	1,730,459	3,257,773	3.1	3.4	6.4	6.2	88.3
<b>By land tenure</b>								
Own land	44,664,329	47,137,638	43,017,174	83.8	92.0	84.1	5.5	-8.7
Others	8,657,159	4,117,317	8,129,133	16.2	8.0	15.9	-52.4	97.4
<b>By documentary of right<sup>2/</sup></b> (own land only)			<b>43,017,174</b>			<b>100.0</b>		
Title deed/ NS5/ NS3/ NS3k			27,248,660			63.3		
SPK 4-01/ NK/ STK/ KSN			9,754,413			22.7		
NS2/ SK1			953,217			2.2		
Others			5,060,884			11.8		

<sup>1/</sup> In 2003, including fresh water culture in the coverage.

<sup>2/</sup> In 1993 and 1998, no question about documentary of right in the questionnaire.

#### 4. Fertilizer and Pesticide

Out of a total 2.6 million holdings with crops in the Northeastern Region, 96.0% used fertilizers. Most of them (94.3%) using inorganic fertilizers, of which the holdings using inorganic fertilizers only was 57.2%, while 37.1% of holdings used inorganic and organic fertilizers. There was very small number of holdings using only organic fertilizers (1.7%). The average quantity used of inorganic fertilizers was 31.7 kg./rai which increased from 1993 and 1998 (24.5 and 31.4 kg./rai respectively), and the number of holdings using inorganic fertilizers only increased by 4.3% from 1998.

Considering the use of pesticides, 44.5% of holdings reported of using pesticides, of which 30.3% used chemical. (Table 4)

Table 4 Number of Holdings with Crops by Using Fertilizer and Pesticide, and Area Treated and Quantity Used Inorganic Fertilizer

Item	Number			Percent			Percentage of change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>1. Number of holdings with crops</b>	<b>2,461,131</b>	<b>2,581,759</b>	<b>2,596,350</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>4.9</b>	<b>0.6</b>
<b>By using fertilizer</b>								
Not use fertilizer	208,840	81,178	104,423	8.5	3.1	4.0	-61.1	28.6
Use fertilizer	2,252,291	2,500,581	2,491,927	91.5	96.9	96.0	11.0	-0.3
Inorganic	921,275	1,423,633	1,485,054	37.4	55.1	57.2	54.5	4.3
Organic	56,900	40,437	43,306	2.3	1.6	1.7	-28.9	7.1
Inorganic and organic	1,274,116	1,036,511	963,567	51.8	40.2	37.1	-18.6	-7.0
<b>By using pesticide</b>								
Not use pesticide	1,652,997	1,510,803	1,439,688	67.2	58.5	55.5	-8.6	-4.7
Use pesticide <sup>1/</sup>	808,134	1,070,956	1,156,662	32.8	41.5	44.5	32.5	8.0
Chemical			787,650			30.3		
Organic			67,676			2.6		
Natural-enemies			28,245			1.1		
Others			461,938			17.8		
<b>2. Area treated inorganic fertilizer (rai)</b>	<b>39,512,238</b>	<b>42,289,215</b>	<b>42,533,519</b>				<b>7.0</b>	<b>0.6</b>
<b>3. Quantity used inorganic fertilizer (1,000 kg.)</b>	<b>968,153</b>	<b>1,327,564</b>	<b>1,350,335</b>				<b>37.1</b>	<b>1.7</b>
Average per rai (kg.)	24.5	31.4	31.7				28.2	1.0

<sup>1/</sup> One holding may report more than one method of using pesticide.

In 1993 and 1998, no question about method of using pesticide in the questionnaire.



## 5. Demographic Characteristics and Activity Status

Table 5 indicates that 71.2% of holders were male and only 28.8% were female. However, the proportion of female holders increased about 2 times from 1998. Most of them (86.8%) in the age group of 35 years and over. Out of this, 74.9% in the age group 35 - 64 years and 11.9% in the age group 65 years and over, which the proportion of the holders in this group increased by 2.0% from 1998.

Table 5 Number of Holders by Sex and Age Group

Item	Number			Percent			Percentage of change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>Total number of holders</b> (Excluding corporation)	<b>2,504,676</b>	<b>2,589,319</b>	<b>2,650,797</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>3.4</b>	<b>2.4</b>
<b>By sex</b>								
Male	2,117,599	2,230,307	1,887,687	84.6	86.1	71.2	5.3	-15.4
Female	387,077	359,012	763,110	15.4	13.9	28.8	-7.2	112.6
<b>By age group</b>								
Under 25 years	38,294	22,730	19,827	1.5	0.9	0.7	-40.6	-12.8
25 – 34 years	411,630	350,998	331,335	16.4	13.6	12.5	-14.7	-5.6
35 – 44 years	727,418	691,632	723,288	29.0	26.7	27.3	-4.9	4.6
45 – 54 years	642,657	753,745	753,512	25.7	29.1	28.4	17.3	0.1
55 – 64 years	447,157	513,342	508,254	17.9	19.8	19.2	14.8	-1.0
65 years and over	237,520	256,872	314,581	9.5	9.9	11.9	8.1	22.5

There were 10.7 million holder's household members or 49.2% of total population in the Northeastern Region, of which 50.4% were male and 49.6% were female. The average number of members was 4.0 persons. It showed a gradual decrease from 4.6 and 4.3 persons in 1993 and 1998 respectively. The dependency ratio<sup>1/</sup> was 43.3%. It was observed that, the higher in age groups the less in number of members, which member under 25 years old constituted the largest group with 35.8% while member 65 years and over were the smallest with 6.2%.

Regarding the activity status of holder's household members aged 10 years and over, it was found that 79.3% engaged in agricultural work on the holding, among these 38.4% engaged in agricultural work only on the holding and 40.9% engaged both in agricultural work on the holding and other works. While 5.5% of members did not engage in agricultural work on the holding. It was found that the member engaged in agricultural work only on the holding had an downward tendency from 60.7, 47.1 to 38.4% in 1993,1998 and 2003 respectively. (Table 6)

<sup>1/</sup> Dependency ratio =  $\frac{\text{Number of population aged under 15 years and 60 years and over}}{\text{Number of population aged 15 – 59 years}} \times 100$

Table 6 Number of Holder's Household Members by Sex, Age Group and Activity Status

Item	Number			Percent			Percentage of change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>1. Total number of holder's household members (Excluding corporation)</b>	<b>11,437,271</b>	<b>11,048,965</b>	<b>10,652,877</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>-3.4</b>	<b>-3.6</b>
Average per household	4.6	4.3	4.0				-6.5	-7.0
<b>By sex</b>								
Male	5,683,709	5,526,262	5,372,438	49.7	50.1	50.4	-2.8	-2.8
Female	5,753,562	5,522,703	5,280,439	50.3	49.9	49.6	-4.0	-4.4
<b>By age group</b>								
Under 25 years	5,531,428	4,882,157	3,809,193	48.4	44.2	35.8	-11.7	-22.0
25 – 34 years	1,875,258	1,780,887	2,033,561	16.4	16.1	19.1	-5.0	14.2
35 – 44 years	1,638,274	1,596,744	1,783,627	14.3	14.5	16.7	-2.5	11.7
45 – 54 years	1,185,236	1,389,975	1,461,386	10.3	12.6	13.7	17.3	5.1
55 – 64 years	750,830	878,062	906,864	6.6	7.9	8.5	16.9	3.3
65 years and over	456,245	521,140	658,246	4.0	4.7	6.2	14.2	26.3
<b>2. Number of holder's household members 10 years of age and over</b>	<b>8,947,506</b>	<b>8,524,534</b>	<b>9,403,238</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>-4.7</b>	<b>10.3</b>
<b>By activity status</b>								
<b>Economically active</b>	<b>8,274,790</b>	<b>7,344,653</b>	<b>7,974,642</b>	<b>92.5</b>	<b>86.2</b>	<b>84.8</b>	<b>-11.2</b>	<b>8.6</b>
Engaged in agricultural work on the holding only	5,427,483	4,012,598	3,612,208	60.7	47.1	38.4	-26.1	-10.0
Engaged in agricultural work on the holding and other works	2,431,637	3,202,051	3,847,831	27.2	37.6	40.9	31.7	20.2
Mainly engaged in agricultural work on the holding	1,740,915	2,137,880	2,700,598	19.5	25.1	28.7	22.8	26.3
Mainly engaged in agricultural work on other holdings	115,518	147,215	262,568	1.3	1.7	2.8	27.4	78.4
Mainly engaged in other works	575,204	916,956	884,665	6.4	10.8	9.4	59.4	-3.5
Not engaged in agricultural work on the holding	415,670	130,004	514,603	4.6	1.5	5.5	-68.7	295.8
Mainly engaged in agricultural work on other holdings	13,825	6,557	58,787	0.1	0.1	0.6	-52.6	796.5
Mainly engaged in other works	401,845	123,447	455,816	4.5	1.4	4.8	-69.3	269.2
<b>Not economically active</b>	<b>672,716</b>	<b>1,179,881</b>	<b>1,428,596</b>	<b>7.5</b>	<b>13.8</b>	<b>15.2</b>	<b>75.4</b>	<b>21.1</b>

## 6. Income and Debt of Holder's Household

There were 18.3% of holders who had household income from agriculture only, while 81.7% from agriculture and other sources. It was observed that the proportion of holders who had household income from agriculture only decreased nearly 50% from 1998. This indicates that most of the holder's household did not rely only on income from agriculture but also on income from other sources. Regarding income from agricultural product of holding. It was found that the holders 37.3% have income from agricultural product in 20,001 - 50,000 baht, followed by income in 10,001 - 20,000 and 50,001 - 100,000 baht with 22.5 and 15.7% respectively. (Table 7)

Table 7 Number of Holders by Household Income

Item	Number			Percent			Percentage of change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>Total number of holders (Excluding corporation)</b>	<b>2,504,521</b>	<b>2,589,321</b>	<b>2,650,794</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>3.4</b>	<b>2.4</b>
<b>By source of household income</b>								
Agriculture only	1,143,145	896,660	484,828	45.6	34.6	18.3	-21.6	-45.9
Agriculture and other sources	1,361,376	1,692,661	2,165,966	54.4	65.4	81.7	24.3	28.0
Mainly from agriculture	774,226	924,941	1,117,308	30.9	35.7	42.1	19.5	20.8
Mainly from being agricultural worker	49,261	80,952	86,823	2.0	3.1	3.3	64.3	7.3
Mainly from other sources	359,593	561,221	552,779	14.4	21.7	20.9	56.1	-1.5
Equally from agriculture and other sources	178,296	125,547	409,056	7.1	4.9	15.4	-29.6	225.8
<b>By income from agricultural product<sup>1/</sup></b>								
Not having agricultural product	45,677	26,911	35,748	1.8	1.0	1.3	-41.1	32.8
Having agricultural product (baht)	2,458,844	2,562,410	2,615,046	98.2	99.0	98.7	4.2	2.1
Under 5,001	442,964	173,811	137,542	17.7	6.7	5.2	-60.8	-20.9
5,001 - 10,000	809,384	518,534	317,861	32.3	20.0	12.0	-35.9	-38.7
10,001 - 20,000	652,261	728,014	596,112	26.0	28.1	22.5	11.6	-18.1
20,001 - 50,000	442,469	837,042	988,324	17.7	32.4	37.3	89.2	18.1
50,001 - 100,000	83,861	243,404	415,278	3.4	9.4	15.7	190.2	70.6
100,001 and over	27,905	61,605	159,929	1.1	2.4	6.0	120.8	159.6

<sup>1/</sup> Value of agricultural product

According to debt of household, there were 61.1% of the holders being in debt for agriculture. The amount of debt for agriculture of the Northeastern Region was 73,014 million baht, which increased by 54.0% (25,617 million baht) from 1998. The average per household in debt was 45,079 baht. Most of debt (55.3%) borrowed from Bank for agriculture and agricultural cooperative. It should be noticed that there were 18.8% from village and city fund which was established recently by the government. (Table 8)

Table 8 Number of Holders by Being in Debt for Agriculture  
and Amount of Debt for Agriculture by Source of Loan

Item	Number			Percent			Percentage of change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>1. Total number of holders</b> (Excluding corporation)	<b>2,504,487</b>	<b>2,589,323</b>	<b>2,650,789</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>3.4</b>	<b>2.4</b>
<b>By being in debt for agriculture</b>								
Not being in debt	1,355,119	1,212,401	1,031,116	54.1	46.8	38.9	-10.5	-15.0
Being in debt	1,149,368	1,376,922	1,619,673	45.9	53.2	61.1	19.8	17.6
<b>2. Amount of debt for agriculture</b> (million baht)	<b>26,828</b>	<b>47,397</b>	<b>73,014</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>76.7</b>	<b>54.0</b>
<b>By source of loan</b>								
Bank for agriculture and agricultural cooperative	15,669	32,978	40,359	58.4	69.6	55.3	110.5	22.4
Other banks / Financial institute	3,713	2,478	3,287	13.8	5.2	4.5	-33.3	32.6
Cooperative / Farmer's group	3,084	6,416	7,495	11.5	13.5	10.2	108.0	16.8
Village and city fund <sup>1/</sup>			13,736			18.8		
Other government agencies <sup>2/</sup>		1,553	1,813		3.3	2.5		16.7
Unorganized market	4,362	3,972	6,324	16.3	8.4	8.7	-8.9	59.2
Middleman	1,150	492	954	4.3	1.1	1.3	-57.2	93.9
Money lender	1,384	1,476	2,746	5.2	3.1	3.8	6.6	86.0
Relative / Neighbour / Others	1,828	2,004	2,624	6.8	4.2	3.6	9.6	30.9
<b>Average per household in debt (baht)</b>	<b>23,342</b>	<b>34,422</b>	<b>45,079</b>				<b>47.5</b>	<b>31.0</b>
<b>Average per total households (baht)</b>	<b>10,712</b>	<b>18,305</b>	<b>27,544</b>				<b>70.9</b>	<b>50.5</b>

<sup>1/</sup> In 1993 and 1998, no question about village and city fund in the questionnaire.

<sup>2/</sup> In 1993, no question about other government agencies in the questionnaire.

## 7. Employment on Agricultural Workers

In Northeastern Region, there were 67.7% of the total holdings employed agricultural workers, of which most of them employed workers on an occasional basis. The data show that only 0.8% of the total holdings employed permanent agricultural workers with 143,840 persons, among these 2.6% were the foreigner workers. (Table 9)

Table 9 Number of Holdings by Employment and Number of Permanent Workers

Item	Number			Percent			Percentage of change	
	1993	1998	2003	1993	1998	2003	1998/93	2003/98
<b>1. Total number of holdings</b>	<b>2,505,506</b>	<b>2,589,323</b>	<b>2,653,182</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>3.3</b>	<b>2.5</b>
Not employ agricultural workers	1,433,706	929,220	857,703	57.2	35.9	32.3	-35.2	-7.7
Employ agricultural workers	1,071,800	1,660,103	1,795,479	42.8	64.1	67.7	54.9	8.2
Permanent workers	10,459	3,771	5,923	0.4	0.1	0.2	-63.9	57.1
Occasional workers	1,037,936	1,648,134	1,774,611	41.4	63.7	66.9	58.8	7.7
Permanent and occasional workers	23,405	8,198	14,945	1.0	0.3	0.6	-65.0	82.3
<b>2. Number of permanent workers</b>	<b>309,813</b>	<b>69,709</b>	<b>143,840</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>-77.5</b>	<b>106.3</b>
<b>By sex</b>								
Male	126,290	27,263	63,929	40.8	39.1	44.4	-78.4	134.5
Female	183,523	42,446	79,911	59.2	60.9	55.6	-76.9	88.3
<b>By source of workers<sup>1/</sup></b>								
Thai			140,046			97.4		
Foreigner			3,794			2.6		

<sup>1/</sup> In 1993 and 1998, no question about source of permanent workers in the questionnaire.