



**METADATA FOR
NATIONAL AGRICULTURAL STATISTICS**

THAILAND

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List of Acronyms

AFSIS	ASEAN Food Security Information System
ASEAD	Agricultural Statistics and Economic Analysis Development
BOT	Bank of Thailand
CAI	Center for Agricultural Information
CAS	Center for Agricultural Statistics
DLD	Department of Livestock Development
DOAE	Department of Agricultural Extension
DOF	Department of Fisheries
FAO	Food and Agriculture Organization
ISIC	International Standard Industrial Classification
JICA	Japan International Cooperation Agency
MAFF	Ministry of Agriculture, Forestry and Fisheries
MOAC	Ministry of Agriculture and Cooperatives
MOPH	Ministry of Public Health
NSC	National Statistical Committee
NESDB	National Economic and Social Development Board
NSO	National Statistical Office
OAE	Office of Agricultural Economics
ONESDC	Office of the National Economic and Social Development Committee
RDES	Regional Data Exchange System
RID	Royal Irrigation Department
SEAFDEC	Southeast Asian Fisheries Development Center
TSIC	Thailand Standard Industrial Classification

CHAPTER 1. NATIONAL SYSTEM OF AGRICULTURAL STATISTICS

1.1 Legal Framework and Statistical Advisory Bodies

The generation of official statistics in Thailand began in 1915. The evolution of Thailand's National Statistical System was based on Statistics Prediction Act of B.E. 2479 (1936), Statistics Act of B.E. 2495 (1952) and the latest, Statistical Act of 1965.

Thailand has a decentralized statistical system. Each ministry has its own statistical unit to collect statistics to serve its own needs. However, under section 5 of the Statistical Act of 1965, the National Statistical Office (NSO) is designated as the core body responsible for the country's statistical activities including the collection, compilation and dissemination of basic statistical data, making recommendations on statistics-related matters and organizing training courses in statistical methods and computer data processing. It also serves as the statistical data bank of the country. From 1966 to 1975, the NSO conducted annual countrywide crop surveys for rice, kenaf and maize. However, after the establishment of the Center for Agricultural Statistics (CAS) under the Office of Agricultural Economics (OAE) in 1979, the generation of agricultural statistics was transferred to the CAS, now known as the Center for Agricultural Information (CAI).

The Statistical Act of 1965 also created the National Statistical Commission (NSC) to be an advisory body of the NSO. The Commission consists of the Chairman, Vice-Chairman, members appointed by the Cabinet, and representatives from every Ministry. The Secretary-General of the NSO serves as member and Secretary of the Commission. As NSO's advisory body, the NSC has the following responsibilities:

- Advice and comment on the statistical and information policies and plans of the NSO
- Advice and comment on the statistical and information coordination between the NSO and other agencies.

1.2 Structure and Organization of Major Agricultural Statistical Agencies

1.2.1 National Statistical Office (NSO)

Under Section 5 of the Statistical Act of 1965, the NSO is authorized to perform the following statistical activities:

- Compile statistics from all statistical agencies,
- Plan and conduct all censuses,
- Promote and develop government as well as private statistical activities,
- Plan, coordinate and direct technical aspects of all statistical projects and activities of the government,
- Collaborate with and participate in the coordination of the work of statistical agencies in the assembling, compilation and analysis of statistics,

- Make recommendations or advise other statistical agencies on plans, methodology, forms, questionnaires, as well as other documents such as handbooks and instructions to be used for statistical purposes,
- Conduct or direct sample surveys, or collect, abstract, compile, and analyze statistics relating to the basic conditions of the country obtained from censuses and surveys,
- Supervise statistical agencies in the technical aspects of planning sample surveys, or in collecting analyzing statistics,
- Conduct or direct research on statistical techniques,
- Issue periodicals and to publish statistical data,
- Maintain a library of books and documents relating to statistics, and to exchange the said books and documents,
- Direct and promote the study of and training in statistics,
- Cooperate with, and participate in the coordination of the work of foreign states or international organizations.

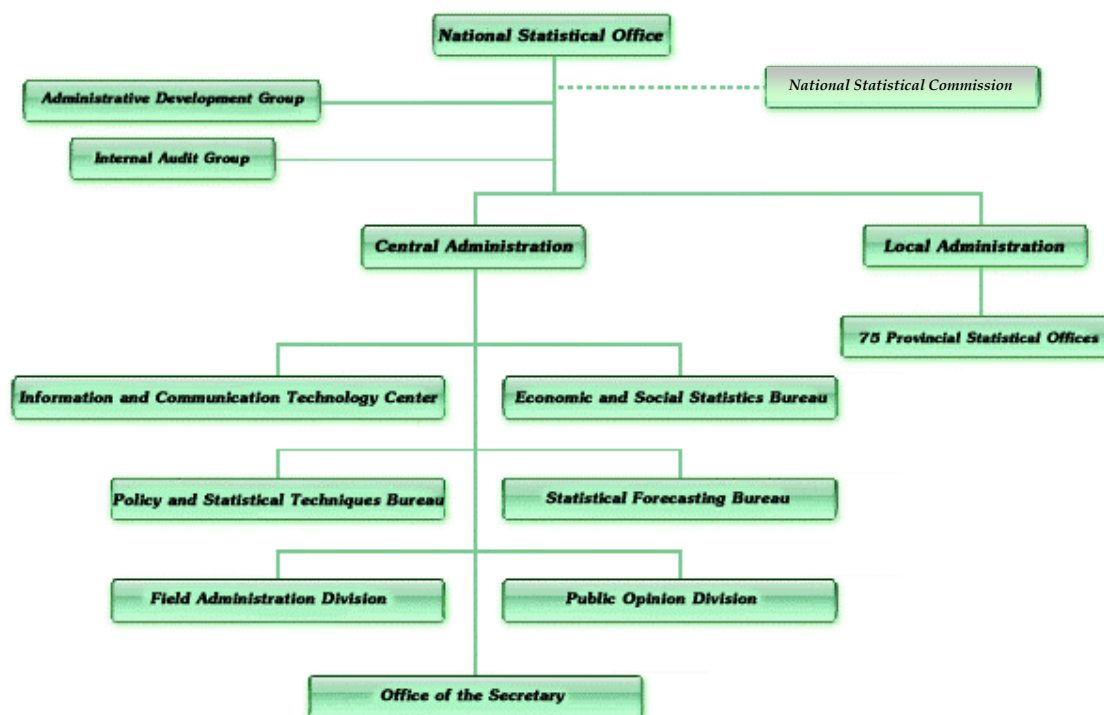
Coordination of statistical activities is an important role of the NSO, which involves the following:

- Coordination with statistical data producers to prevent duplication of work, thus helping save budget as well as ensuring statistical standard;
- Coordination with statistical data users so that the office will be aware of their needs and thus provide statistical data to suit their requirements. In planning of surveys and censuses, the representation of other government agencies concerned were invited to be the members of the Steering Committee as well as the Working Group;
- Coordination with the information providers (households or establishments);
- Coordination with foreign statistical offices and organizations in the exchange of statistical techniques, statistical data and technical assistance; and
- Organization of special surveys for other agencies as requested.

The NSO also provides technical advice and consultants to other government agencies and the private sector on statistical methodologies, sampling design, questionnaire design, estimation of statistical measures, data analysis and report preparation to ensure that the preparation of each agency's statistical data is of high quality and in compliance with recognized statistical standards. This helps promote and develop the national statistical system of Thailand as a whole.

The NSO has 469 professional staff and 729 support staff in the head office, and 396 professional staff and 1,777 support staff in the regional offices.

National Statistical Office Organizational Structure



1.2.2 Office of Agricultural Economics (OAE)

The OAE is the prime office responsible for collection and dissemination of agricultural statistics. It is also the organization in charge of the economic and social research and other studies including monitoring and evaluation for purposes of agricultural policy recommendations and agricultural development planning.

In 1979, Thailand legislated the "Agricultural Economics Act of B.E. 2522", which established the OAE to perform the following duties:

- Analyze the agriculture policy and agriculture and cooperative development plans for submission to the Committee on Agriculture and Cooperative Development Policy and Planning;
- Study and analyze agricultural production planning and sources of cultivation and livestock production according to climatic conditions, types of farming, major income of farmers and internal market demands and report to the Committee for consideration to designate the agricultural economics areas;
- Study and analyze the formulation of marketing and transport system and development of farm product markets in an efficient manner as well as analyze the prices of and demand for farm products;

- Study and analyze sources of agricultural resources, analyze utilization of resources as well as study and analyze production economics and formulate crop cultivation and livestock production systems in an efficient manner;
- Compile statistical information of all kinds crop and livestock production, agricultural production situations, farm income and expenses, farmers indebtedness conditions, market situations of farm products and other agricultural economics information necessary of analysis of agriculture policy and agriculture and cooperative plans and publication of statistics papers concerning agricultural economics for distribution and publicity of agricultural statistics information;
- Analyze and evaluate outcome of investment made in agricultural projects including follow-up and evaluation of success and progress of the projects and operating plans of work units under the direction of the Ministry of Agriculture and Cooperatives as well as propose to the Committee recommendations on guidelines for boiling down the problems and obstacles which require urgent action;
- Analyze other sector of economic development including international agricultural economics conditions required for formulation of agriculture and cooperative development plans;
- Develop register in regard to agricultural enterprises, by categories, types of groups of each sector;
- Coordinate work with the various, related government agencies and state enterprises in establishing agriculture policy and agriculture; and cooperative development plans, as well as maintain contact with the Office of the National Economic and Social Development Committee; and
- Perform any other action specified by law as function of the committee or of the Office of Agricultural Economics.

The OAE consists of 5 bureaus/centers and 9 agro-economic zones as follows:

- Office of the Secretary
- Center for Agricultural Information
- Bureau of Agricultural Economics Research
- Bureau of Policy and Agricultural Development Plan
- Center of Economic Project and Program Evaluation
- Agro Economic Zones 1-9

Presently, OAE has around 1,000 officials and permanent employees, about 300 of which work at Regional agro-economic offices. The officials responsible for agricultural statistics and information are as follows: 48 professional staff and 93 support staff in the headquarter, and 30 professional staff and 59 support staff in regional offices.

The Center for Agricultural Information (CAI) is the unit mainly responsible for the compilation and dissemination of agricultural statistics. Its main duties are summarized as follows:

- Generate information on production and marketing of crops, livestock and fisheries;
- Make forecasts on production and prices, including assessment of the impacts of natural calamities;
- Develop geographical information system and its application to agriculture; and
- Develop information network system.

CAI is composed of 10 divisions and one administration unit as follows:

- Field Crop Production Information Division
- Horticultural Crop Production Information Division
- Livestock and Fisheries Production Information Division
- Agricultural Economics Information Division
- Agricultural Information Technology and Database Division
- Agricultural Forecasting Division
- Geographic Information System Division
- Agricultural Input and Price Information Division
- Agricultural Information Management Division
- General Administration

1.2.3 Other Agencies

In addition to the NSO and OAE, the following agencies under the Ministry of Agriculture and Cooperatives (MOAC) are also compiling and publishing agricultural statistics.

- **Department of Agricultural Extension (DAE)** compiles statistics on area and production of various crops from the reports of its local officers, which have their respective agricultural extension officers in every *Tambon*.
- **Department of Livestock Development (DLD)** undertakes collection and publication of figures on number of animals raised and slaughtered, died due to epidemic diseases, vaccinated and number of beasts of burden (elephants, horses, mules and asses). These statistics are compiled from the reports of its local officers stationed in every district.
- **Department of Fisheries (DOF)** collects and publishes all fisheries statistics. The *Amphoe* (District) Fisheries Office is the lowest administrative level of the DOF.
- **Cooperative Promotion Department** is responsible for promoting all cooperatives in the country and implementation of activities based on Cooperative Act BE 2511 (1968); and Land Allocation for Livelihood Act BE 2511 (1968) on matters relevant to land settlement cooperative promotion and related laws. Agricultural cooperatives are established to enable farmer members to engage in business together, thus

helping one another in times of crisis as well as in gaining for themselves a better livelihood and quality life.

The **Department of Internal Trade** is one of the departments under the Ministry of Commerce which issues monthly and annual reports on retail and wholesale prices and price indices of various commodities, including food and agricultural products.

1.3 Outputs and Dissemination of Agricultural Statistics

1.3.1 Contact Information of the Focal Points of Dissemination

- **National Statistical Office**

Contact person 1: Thananoot Treetipbut
Title : Secretary General
Address : Larn Luang Road, Bangkok 10100 Thailand
E-mail :
Telephone No. : 66 2 2810333
Telefax No. : 66 2 2813815

Contact Person 2: Rajana Netsaengtip
Title : Chief, Household Economic Statistics Group
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E-mail : raja@nso.go.th
Telephone No. : 66-2281-0333 Ext. 1206

- **Office of Agricultural Economics**

Contact Person : Dr.Kanok Katikan
Title : Secretary General
Address : Kasetsart University Complex, Jatujak, Bangkok
10900 Thailand
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Telephone No. : 66-2940-5550 - 1

- **Center for Agricultural Information
Office of Agricultural Economics**

Contact Person : Montol Jeamchareon
Title : Director
Address : Kasetsart University Complex, Jatujak, Bangkok
10900 Thailand
E-mail : montol@oae.go.th
Telephone No. : 66-279-3607 Fax 66-2940-5521

- **Agricultural Information Management Division
Center for Agricultural Information
Office of Agricultural Economics**

Contact Person : Jiraporn Srichada
 Title : Director
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 10900 Thailand
 E-mail : prcai@oae.go.th
 Telephone No. : 66-2940-6641 Fax 66-2561-2870

1.3.2 Major Publications / Statistical Reports – Domains not indicated,

Title of Publication	Format	Frequency	Release Calendar
Statistical Yearbook, Thailand	Book	Annual	
Key Statistics of Thailand	Book	Annual	
The Household Socio - Economic Survey	Book	Annual	
Report of the Labor Force Survey,	Book	Annual	
Report the Population and Housing Census 2000	Book		
Intercensal Survey of Marine Fishery Marine Shrimp Culture	Book		
The Intercensal Survey of Marine Fishery	Book		
Agricultural Statistics Yearbook	Book ,CD-Rom,	Annual	September
Agricultural Foreign Trade Statistics Yearbook	Book ,CD-Rom,	Annual	September
Agricultural Economics Indicators	Book	Annual	March
Agricultural Economics Basic Information	Book	Annual	January
Agricultural Production Forecasting Journal	Book	Quartetly	March June September December
Agricultural Survey Reports On Crop And Livestock Production	Book		
Farmgate Price Statistics	Book	Monthly	
Agricultural Price Index	Book	Monthly	
Agricultural Production Index	Book	Monthly	

1.4 Dialogue with Data Users and Cooperation with International Organizations

There are many active fora for dialogue between agricultural statistics producers and users. State planning organizations such as the National Economic and Social Development Board (NESDB) and Bank of Thailand (BOT) meet regularly with OAE to discuss about economics and agricultural production situation before the country's gross domestic product (GDP) and other economic indicators are published. OAE also coordinates with the private sector such as Cassava Traders Association, Farmers' Association and agricultural and industrial representatives for information exchanges.

At the International level, OAE has collaborated with organizations like the Japan International Cooperation Agency (JICA), Food and Agriculture Organization (FAO) and the Southeast Asian Fisheries Development Center (SEAFDEC). In 2003 to 2007, OAE and JICA jointly undertook the Agricultural Statistics and Economic Analysis Development (ASEAD) Project aimed to improve the statistical capacity in the OAE. Specifically, the Project aimed to achieve the following objectives:

- Improvement of OAE's data collection methodology;
- Enhancement of information networks linking OAE to its regional offices
- Development of economic analysis techniques; and
- Training of OAE personnel statistical capacity building.

Under the Project, OAE staff learned and practiced the conduct of crop-cutting survey, area survey and food consumption survey. They were also able to develop data processing systems using web application softwares and construct input-output tables for data analysis. Various training courses on statistical methods and information technology were also organized for OAE staff.

At the regional level, OAE is Thailand's national focal point in FAO's project entitled "Strengthening Regional Data Exchange System on Food and Agricultural Statistics in Asia and Pacific Countries" It is also the implementing agency of the ASEAN Food Security Information System (AFSIS) Project while the Ministry of Agriculture, Forestry and Fisheries (MAFF) in Japan is the donor agency through ASEAN Trust Funds. The overall objective of AFSIS is to facilitate food security planning, implementation, monitoring and evaluation in ASEAN through the systematic collection, organization, management, analysis and dissemination of food security data and information. Project activities focus on capacity building for statistical personnel of all ASEAN member countries in two dimensions: human resources development and development of information network systems

1.5 Strategic Framework

To improve agricultural statistics and information system in Thailand OAE plans to:

- **Integrate / Reconcile statistical information** - Presently, agencies under the MOAC collect the same information using different concepts and methodologies, sometimes resulting to inconsistencies in the figures. An example is para rubber statistics collected by both OAE and Rubber Research Institute under the Department of Agriculture by using different methodologies
- **Construct a data warehouse** - OAE is now in the process of constructing a data warehouse using new data management software. In the present system, there are various kinds of databases and

softwares used causing problems in the agency's database linkage and networking system.

- **Improve Management Information Systems** in the OAE and MOAC through the application of the Geo-Informatics technology. This involves the use of geo-information technology, namely, geographic information systems (GIS), remote sensing (RS) techniques and global positioning systems (GPS) to manage, analyze and model data that are geographically located.

CHAPTER 2. MAJOR DOMAINS AND SELECTED INDICATORS OF AGRICULTURAL STATISTICS

2.1 List of Major Domains and Selected Indicators

Domain	Statistics / Indicator
Production	
• Crops	Quantity of crop production Value of crop production
• Livestock and Poultry	Quantity of livestock production Quantity of poultry production Value of livestock production Value of poultry production Livestock and poultry inventory
• Fishery	Quantity of fishery production Value of fishery production
• Macroeconomic Indicators	Gross National Product Gross Domestic Product Gross Value Added in agriculture
Foreign Trade	Quantity of agricultural exports and imports Value of agricultural exports and imports Prices of agricultural imports and exports
Food Consumption	Food consumption statistics
Prices	Average monthly prices of selected agricultural products Producer price index by commodity group Consumer price index by commodity group
Land Use	Total farm area Irrigated area Area planted/harvested
Inputs	Fertilizer, pesticides, insecticides, herbicides statistics Index of agricultural input prices
Agricultural Machinery	Agricultural machinery
Labor and Employment	Employment Rural employment Labor force in agriculture Nominal wage rates by sector
Others	Socio-economic information on agricultural households Rural income Agriculture terms of trade Agri-environmental indicators Active population in agriculture Rural population Rural infrastructure Agricultural credit

2.2 Metadata for the Major Domains

2.2.1 Concepts, Definitions, and Classifications

Thailand subscribes to the Thailand Standard Industrial Classification (TSIC 2001) which adheres to International Standard Industrial Classification (ISIC). Concerned agencies use the TSIC for statistics, economics and industrial purposes.

In producing agricultural statistics, Thailand adheres to FAO's concepts and definitions on production, yield per hectare, area harvested, population, quantity of imports and exports, value of imports and exports, land use, as well as the United Nations' definition of macroeconomic indicators such as gross national product. However, due to the differences in the agricultural structure among countries, Thailand has come up with its own set of definitions for the following statistical terms.

In reporting production and farm gate prices of crop and livestock commodities, the following standards are set:

Farm product	Product form	Farm Price
Rice	Major and second paddy already threshed at 14% moisture content	Weighted average prices for the 5% major non-glutinous paddy, major long-grain glutinous paddy and second non-glutinous paddy at 14% moisture content
Major rice	Major paddy already threshed at 14% moisture content	Weighted average prices for the 5% major non-glutinous paddy and the major long-grain glutinous paddy
Second rice	Second paddy already threshed at 14% moisture content	Second paddy at 14% moisture content
Maize	Maize grains at 14% moisture content	Maize at 14% moisture content
Sorghum	Sorghum grains at 14% moisture content	Weighted average prices for the white and brown sorghum
Mungbean	Mungbeans and black matpe beans at 14% moisture content	Large mungbeans, mixed at 14% moisture content
Cassava	Fresh cassava roots	Fresh cassava roots, mixed
Industrial Sugarcane	Fresh sugarcane stalk without leaves and top	Industrial sugarcane
Soybeans	Soybean grains	Soybeans, mixed
Groundnuts	Dry groundnuts in shell	Dry groundnuts in shell, mixed
Sunflower	Sunflower grains at 14% moisture content	Sunflower, mixed at 14% moisture content

Farm product	Product form	Farm Price
Oil palm	Oil palm fruits attaching to the bunch	The oil palm fruits with bunch weighing more than 15 kgs.
Sesame	Black sesame seed, white sesame seed and brown sesame seed	Weighted average prices of black sesame, white sesame and brown sesame, ungraded
Coconut	Mature coconut fruits	Large coconuts
Castor beans	Dry castor beans, shelled	Dry castor beans, mixed
Kenaf	Retted kenaf	Retted kenaf, mixed
Cotton	Cotton lint with seed	Cotton lint with seed
Garlic	Garlics in dry condition for 90 days	Dry garlic, mixed
Baby corn	Young corn in husk	Young corn in husk, mixed
Shallot	Shallots in dry condition for 7 days	Dry shallots, mixed
Onion	Onions with their crowns cut for 7 days	Onions, mixed
Chili	Chili in dry condition	Dry chili, mixed
Potato	Fresh potatoes	Industrial potatoes, mixed
Pineapples	Fresh pineapple fruits, crowns and stems cut	Industrial pineapples, mixed
Coffee beans	Coffee matters	Coffee matters, mixed
Para rubber	Unsmoked rubber sheets	Unsmoked rubber sheets, grade 3
Pepper	Black pepper seeds	Black pepper seeds, mixed
Tobacco, Virginia	Virginia tobacco, green leaves	Virginia tobacco leaves, mixed
Hog	Live hogs	Hogs, each weighting 100 kgs. and over
Broiler	Live broilers	Live broilers
Duck	Young live meat duck	Grower meat duck, medium size
Hen eggs	Fresh hen eggs	Fresh hen eggs, mixed
Duck eggs	Fresh duck eggs	Fresh duck eggs, mixed

The following conversion rates from Thai units of measurement units to international units are also used.

1 hahp	= 60 kilograms	1 hectare	= 6.25 rai
1 rai	= 0.16 hectare or 0.395 acre	1 acre	= 2.5 rai

Agricultural household income and expenditure are defined as follows:

Agricultural household income refers to the gross sum of money received in a year by the members of a household, which is derived from the following sources:

- Income from employment (full time and part time), services rendered, and bonuses
- Net profit from agricultural and other businesses,
- Income from property investments (e.g. land and house rental), copyrights, interests, and dividends
- Financial aids like retirement allowance and pension,
- Non-cash income, i.e. value of goods and services earned as part of wage or salary; goods or foodstuff values made for household consumption (including an assessment of own household), or anything earned without pay,
- Other sources of cash income, e.g. insurances, lotteries and the like.

Agricultural household expenditure refers to the total amount of money that the family spends for subsistence during a particular period. This consists of the following:

- Values of goods and services earned as a part of wage or salary, goods or foodstuff values made for household consumption (including the assessment of own household), or anything a family earns without pay.
- Other types of expenditure, e.g. taxes, donation, insurance premium, lottery, and interest payment, include other non-consumption expenditure.

2.2.2 Coverage, Availability, Data Sources and Responsible Agencies

Statistics / Indicator	Coverage	Availability	Data Source	Responsible Agency
Production				
Quantity of crop production	National and provincial levels	Yearly	Survey / Report	OAE, DOAE
Value of crop production	National and provincial levels	Yearly	Survey / Report	OAE, DOAE
Yield per hectare	National and provincial levels	Yearly	Survey / Report	OAE, DOAE
Area harvested	National and provincial levels	Yearly	Survey / Report	OAE, DOAE

Statistics / Indicator	Coverage	Availability	Data Source	Responsible Agency
Quantity of livestock production	National and provincial levels	Yearly	Survey / Report	OAE, DOAE
Value of livestock production	National and provincial levels	Yearly	Survey / Report	OAE, DOAE
Foreign Trade				
Quantity of agricultural imports	Not applicable	Monthly and yearly	Report	Custom Department
Value of agricultural imports	Not applicable	Monthly and yearly	Report	Custom Department
Quantity of agricultural exports	Not applicable	Monthly and yearly	Report	Custom Department
Value of agricultural exports	Not applicable	Monthly and yearly	Report	Custom Department
Agricultural import prices	National level	Monthly and yearly	Report	Custom Department
Agricultural export prices	National level	Monthly and yearly	Report	Custom Department
Food Consumption				
Quantity	National and provincial levels	Specific	Survey	MOPH
Calories	National and provincial levels	Specific	Survey	MOPH
Proteins	National and provincial levels	Specific	Survey	MOPH
Fats	National and provincial levels	Specific	Survey	MOPH
Prices				
Producer prices	National, provincial and market levels	Daily, weekly, monthly, yearly	Survey	OAE
Land Use				
Land use	National, provincial and village levels	Every 2 years / 10 years	Census / Survey	OAE
Irrigation	National, provincial and village levels	Every 2 years / 10 years	Survey / Report	RID, OAE
Inputs				
Fertilizers	National, provincial and village levels	Every 2 years / 10 years	Census / Survey	OAE
Fertilizers, Insecticides, Herbicides	National, provincial and village levels	Every 2 years / 10 years	Census / Survey	OAE
Agricultural input prices	National, provincial and market levels	Daily, weekly, monthly, yearly	Survey	OAE
Agricultural Machinery				
Agricultural machinery	National, provincial and village levels	Every 2 years / 10 years	Census / Survey	OAE

Statistics / Indicator	Coverage	Availability	Data Source	Responsible Agency
Labor and Employment Statistics				
Active population in agriculture	National, provincial and village levels	Every 2 years / 10 years	Census / Survey	OAE
Labor force in agriculture	National, provincial and village levels	Every 2 years / 10 years	Census / Survey	OAE
Rural Employment	National and provincial levels	Monthly	Survey	NSO
Others				
Rural Infrastructure	National and provincial levels	Yearly	Survey	NSO
Agricultural credit	National and provincial levels	Every 2 years	Survey	OAE

2.2.3 Data Processing, Estimation and Revision Methodology

In Thailand, several methods are used in coming up with statistics at the desired levels of disaggregation.

For statistics generated from sample surveys, the survey's prescribed estimation procedures are used to generate the data. In 2004, OAE introduced the conduct of crop cutting technique in surveys of important crops such as rice, cassava and sugarcane. In this method, sample plots are selected from which production, and consequently yield, are estimated.

Another method used is the rapid rural appraisal (RRA) method to quantitatively and qualitatively assess crops' production and marketing situations. In this method, the staff conduct small periodic surveys to investigate on the existing agricultural situation and make reports on their findings as input to analysis.

The use of Geo-Informatics technology is an alternative way of estimating production in the OAE. Based on the observation of sample points by using satellite imageries and aerial photographs, the specific areas under investigation can be computed. Yield data obtained from farm surveys, especially through the crop cutting technique, is then factored in for the calculation of production of certain crops.

Statistical modeling, on the other hand, is used to estimate planted area and production of crops. Independent variables are identified to creating forecasting models. Usually, prices and rainfall constitute the independent variables for area planted and crop production.

At present, OAE is making quarterly forecasts of about 20 commodities at the provincial level. It has also developed a national aggregate model and produced mid year outlook report for 65 commodities. The forecasted data are adjusted from time to time based on field observations and other exogenous information such as government policies, etc.

CHAPTER 3. MAJOR SOURCES OF DATA IN AGRICULTURAL STATISTICS

3.1 List of Major Agricultural Censuses, Surveys and Registers

Censuses

- 2003 Agricultural Census
- 1995 Marine Fishery Census

Surveys

- Crops Production Survey
- Livestock Production Survey
- Cost of Production Survey
- Area Frame Survey
- Socio-economic Survey
- Infrastructure Survey

3.2 Metadata for Each of the Major Censuses

3.2.1 2003 Agricultural Census

3.2.1.1 Overview

The NSO 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 for policy-making, monitoring and evaluation of the agricultural development projects and in accordance with FAO's recommendations, the Fifth Agricultural Census was conducted in 2003 to collect data on the structure of agriculture from agricultural holdings throughout the country.

NSO used the close segment concept in the 2003 Agricultural Census. The activity covered all holdings engaged in crop cultivation, livestock raising and fish culture in fresh water environment. The objectives of the Census were as follows:

- To collect data on agricultural structure such as number and area of holdings, land use, land tenure, area planted to crops, number of inland fishery establishments, water area under fresh water culture, number of livestock, fertilizer and pesticide usage, data on machinery and equipment, etc.;
- To provide data for small administrative units;
- To provide a basis of sampling frame for other agricultural surveys; and
- To study changes in the agricultural structure in 10 years.

3.2.1.2 Census Design

Stratified two-stage sampling was adopted for the advanced report. Regions were constituted strata. The primary and secondary sampling units were enumeration districts and holdings, respectively. The groups of provinces in each region

constituted the strata. There were altogether 4 strata: Central, North, Northeast and South

The sampling units were drawn as follows. The primary sampling units were selected using systematic sampling from each stratum with a sampling fraction of 1 in 5. A total of 4,581 sample enumeration districts were drawn out of 22,950 enumeration districts. Secondary sampling units (holdings) in each sample enumeration district were listed first then sample holdings were selected systematically with a 1 in 5 sampling fraction. The overall sampling fraction was 1 in 100.

3.2.1.3 Conduct, Operations, Data Quality Control

The 2003 Agricultural Census used face-to-face interview as the method of data collection. The field work was carried out during May 13 to June 10, 2003. Around 2,500 village health volunteers were recruited as enumerators 5,000 supervisors were recruited from local officers of the DOAE. The enumerators were sent out to interview all heads of households using a listing form to find out the agricultural holders. Approximately 5.8 million agricultural holders were subsequently interviewed for detailed information using enumeration form.

3.2.1.4 Statistical Report

Advanced Report on the 2003 Agricultural Census

This report presents the census results for some major characteristics based on one percent sample of agricultural holdings by region and the whole kingdom. The report was expected to serve the needs of various users before the completion of the final report which would present the census results from all agricultural holdings. The following were presented in the advanced report.

- Number and area of holdings
- Some characteristics of holdings
- Area of holdings by land use and land tenure
- Fertilizer and pesticide
- Demographic characteristics and activity status
- Income and debt of holder's household
- Employment of agricultural workers

3.2.2 Marine Fishery Census

3.2.2.1 Overview

The NSO, in collaboration with Department of Fishery, conducted the Marine fishery Census in 1967 and 1985. However, because Thailand's marine fishery has developed rapidly and it is important that accurate and timely statistics be

generated for planning and policy making in the fishery sector, the third Marine Fishery Census was conducted in 1995.

3.3 Metadata for Each of the Major Surveys

3.3.1 Crop Production Survey

3.3.1.1 Overview

OAE conducts production survey for major crops annually. The survey on crops includes paddy, maize, cassava, palm oil, rubber, soybean, coffee, sugar cane, pineapple, longan, durian, mangosteen and rambutan. The survey covers villages and households cultivating these crops in each province. The items collected are planted area, harvested area, production and yield, dates of planting and harvesting, varieties planted, fertilizer usage and number of total trees and productive trees (for trees and fruit crops)

3.3.1.2 Survey Design

The sampling design used in the crop survey is stratified two-stage sampling with the village as primary sampling unit and the household as the secondary sampling unit. For each crop, all villages which are reported to plant the crop under survey are stratified based on area planted, then sample villages are randomly selected from each stratum. Listing of households planting the crop under study is then undertaken in each of the sample villages, after which a sample of about 10 crop growers are selected randomly for interview. Estimates of total and mean of the characteristic under study are obtained from this sample.

Proportional allocation is used in determining the number of sample villages in each stratum in a given province. The number of sample villages, therefore, depends on the total number of villages planting the crop in the province.

3.3.1.3 Conduct, Operations, Data Quality Control

Data collection is done by OAE staff in each agro-economic zone through interview of the sample farmers. In 2004, however, the crop cutting technique was implemented in the surveys on rice and cassava.

In order to reduce errors in data collection, OAE has introduced the Geo-Informatics Technology to compute for the planted area under investigation based on the observations of sample points by using satellite imageries and aerial photographs.

OAE also makes use of advanced information and communication (IC) technology in processing its data. Central and regional offices are equipped with advanced hardware and software and concerned officers are trained regularly to improve their data processing knowledge and skill. The data processing in OAE has three types, as follows:

- **Data Processing at the Regional Offices**

The data collected through farm surveys are processed at the regional offices, and are sent to Central Office through OAE's network system.

- **Data Processing at the Central Office**

The central office processes survey data using the Geo-Informatics technology. The results are spatial data on land area by land use. Yield data coming from farm surveys are used as input in computing production.

- **On-line Data Processing**

The on-line data processing is designed for processing data derived through the Crop Cutting Technique. The on-line data processing allows Central Office to closely monitor the progress of the activity and performance of the staff at the regional offices, and provide immediate expert assistance as necessary.

To ensure the quality of the data generated, OAE conducts training of enumerators before the field survey to see to it that the concepts and survey procedures are correctly understood. Field supervision is also practiced, as well as making sample checks after the field survey. The coefficient of variation is used as an accuracy measure of the estimates generated.

3.3.2 Livestock Production Survey

3.3.2.1 Overview

OAE annually conducts production survey for livestock which covers cattle, buffalo, swine, chicken, duck and dairy cow. The survey is conducted on January 1 and July 1 of each year in both commercial and non-commercial (backyard) farms. The data items collected are inventory and production.

3.3.2.2 Survey Design

The farms are divided into two types, namely, commercial and backyard farms.

3.3.3 Cost of Production Survey

3.3.3.1 Overview

The OAE carries out the Cost of Production Survey annually. Usually, the sample farmers for this survey are sub-samples of the crop production survey. The information collected is classified under two major items, namely, variable and fixed cost. Each cost item is further broken down into cash cost and imputed cost. The number of commodities covered in the survey varies year by year

depending on the commodities that need updating of physical coefficients in the process of cost computing.

3.3.3.2 Survey Design

A stratified two-stage sampling is used with the village as primary sampling unit and the household as the secondary sampling unit. For each crop, all villages which are reported to plant the crop under survey are stratified based on area planted, then sample villages are randomly selected from each stratum. Listing of households cultivating the crop under study is then undertaken in each of the sample villages. Selection of sample households in each sample village is done using simple random sampling.

3.3.4 Socio-economic Survey

3.3.4.1 Overview

The Socio-economic Survey is a multi-purpose survey conducted by the OAE every two years. The survey gathers information on land use, characteristics of farm households, income and expenditures coming from farm and off-farm sources, credit and indebtedness situation of farm households and farm assets, among others.

3.3.4.2 Survey Design

A stratified two-stage sampling is used with village as primary sampling unit and the farm household as secondary sampling unit. The villages are stratified according to the number of households in the village. The second stage sampling units are the farm households, which are first listed in the sample villages, then randomly selected from the list.

3.3.5 Survey on Prices

3.3.5.1 Overview

Weekly farm-gate prices and daily wholesale prices of agricultural commodities are collected at the CAI. The weekly bulletin reports of commodities production situation, marketing and farm-gate prices are published and distributed to the general public every Monday.

3.3.6 Infrastructure Survey

3.3.6.1 Overview

The NSO conducts this survey annually.