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AGRICULTURAL INFORMATION SUPPORT TO FARMERS IN THAILAND

Agricultural Information Support to Farmers in Thailand^{1/}

1. Introduction

The population in Thailand was estimated at 63 millions. The total area is approximately 514,000 square kilometers. Forty-one percent of the total land area is used for agricultural purposes, 32% is forest land and 28% is unclassified land. Thailand is predominantly an agricultural country. Approximately two-thirds of the population is engaged in agriculture. About 11 percent of the gross domestic product is derived from agricultural sector. Agricultural products in Thailand have not been produced for their own consumption but also being a major source of income from exporting. Although agricultural export value to total export has been decreasing in recent years, the value of agricultural exports is increasing every year and still a major source of export earning. Currently agricultural exports constitute about 23 percent of the total export value. Thai government is attempting to enhance agricultural productivity. By increasing productivity, it is essential to raise incomes and improves the living standard of the people. So Thai farmer and the related agencies should have up to date and accurate agricultural statistics and information, to plan and make a policy and decide on a strategy for increased productivity. Recently, fisheries products and livestock products become more and more important source of export earning.

Sufficiency Economy, Thailand, The New Theory in Agriculture which is suitable for farmers. A practical way that H.M. the king has initiated to help the farmers to improve their quality of life. It is divided into 3 stages, 1st stage : is widely known in the name of “The New Theory in Agriculture” which is a production for self-sufficient, 2nd stage : is to cooperate or to form a group to support production, marketing, society and social welfare, 3rd stage : is to launch their production activities into business. The advantages of the sufficiency economy are 1) use the land with high efficiency, 2) various production, 3) reduce risks, 4) reduce cost of production, 5) increase income, 6) balance natural environment, 7) more activities, 8) reduce migration, 9) better life quality.

2. Current and planned collection of agricultural statistics (survey, census)

Present Situation on Agricultural Statistics in general, the agricultural statistical system in Thailand is decentralized by law. The National Statistical Office (NSO) is a government agency with a departmental status under the Ministry of Information and Communication Technology. It plays the leading role in producing basic statistics at national and regional level

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and serving as the coordinating body for all statistical activities of government agencies. In practice, there are many government agencies, which are responsible for collecting statistical data. Each agency has its own statistical unit but different in size and status.

Under the provision of Agricultural Economics Act. B.E. 2522(A.D.1979), the Office of Agricultural Economics (OAE) have the power and duty to deal with statistics agricultural economics and agriculture development.

Agricultural statistics in Thailand are composed of agricultural census and agricultural survey, to obtain timely statistics of agricultural structure data for policy making, monitoring and evaluation of the agricultural development projects. The agricultural census were to collect data on agricultural structures, to study changes of agricultural structures in 10 years, to provide data for small administrative units, and a frame for other agricultural surveys.

2.1 Agricultural Census

Agricultural census is conducted by the National Statistical Office to obtain basic information such as number and area of holding, land use, land tenure, planted area of crop, number of livestock, use of fertilizer and pesticide, machinery, etc. The Agricultural Census of Thailand was conducted in 1950, 1963, 1978, 1993 and 2003. Moreover, NSO and the Department of Fisheries jointly conducted Marine fishery Census in 1967, 1985 and 1995. Thailand's fishery has developed rapidly in recent years and it is essential to obtain timely statistics for policy formulating and development planning of marine fishery.

2.2 The 2008 Intercensal Survey of Agriculture

The Agricultural Census is planned to conduct every ten – year period as recommended by FAO, however, the interval of census is so long that some data on agricultural structure might have changed. In order to capture the changes of agricultural structure and obtain data on agricultural statistics, the National Statistical Office has decided to conduct the Intercensal Survey of Agriculture every 5 years, starting in 1983, 1988 and the present one in 2008. This Intercensal covers the total sample of about 45,000 holdings throughout the whole country. The one month period of interviewing the sample holdings is scheduled in May, 2008. Data items collected are 1) legal status of holder, 2) land tenure, land use and irrigation, 3) Rice, 4) field crops, 5) vegetable crops, flower and ornamental plant, 6) permanent crops, 7) para rubber, 8) livestock, 9) fertilizer and pesticide, 10) machinery and equipment, animal utilization and transport equipment for agriculture, 11) employment on the holding, 12) members of the holder's household and activity status, 13) education and main activity status of holder, 14) income and indebtedness of holder's household.

2.3 Agricultural Survey

2.3.1 Crop Production Survey. Office of Agricultural Economics(OAE) annually conducted several surveys for major crops, namely Rice, Maize, Cassava, Sugarcane, Soybean, Mung Bean, Groundnut, Sorghum, Kenaf, Cotton, Pineapple, Garlic, Shallot, Onion, Potato, Pepper, Coffee, Oil Palm, Para Rubber and other fruit crops such as Rambutan, Durian, Guava, Lime, Tangarine, Longan, Mangosteen, and Lichee. The data collected for each crop comprise of planted and harvested areas and production. The data collected for each fruit crops and tree comprise of existing tree crop area, crop removal area, crop productive area and production. Beside, each crop is undertaken separately in accordance with the following factors: variety, quantity of seeds, planting method, irrigation supply, crop characteristics, business type and fertilization.

2.3.2 Livestock Production Survey. The livestock and poultry are currently divided into two types of farms: commercial farms(big operators) and non-commercial farms(backyard farms). The types of livestock are cattle, buffalo, swine, duck, chicken and dairy cow. The data collected comprise of inventory and production..

2.3.3 Fisheries Production Survey. And Office of agricultural economics also collected some fisheries production in the annually fisheries production survey. The types of these fisheries are Jumbo Tiger Prawn, Penaeus Vanamei, Walking Catfish, Striped Snake-head, Nile Tilapia and Thai Red Tilapia(or Ruby tilapia). The data collected comprise of production.

2.3.4 Cost of Production Survey. This survey is carried out annually by the OAE. The sample farmers for this survey are mostly the sub-sample of the each crop production survey. The information collected is divided into two major items-variable costs and fixed cost. For each item, it is also break down into cash cost and imputed cost. The commodities covered in this survey varied from year by year depending on the need for updating of physical coefficients in computing the cost.

2.3.5 Crop Forecasting. Thailand is an agricultural exporting country for which the exporting policy has to be formulated, if possible, well in advance before actual harvest of each crop. Therefore, 25 commodities included in the quarterly forecast is another alternative to get this information at the early stage. The main item of this forecasting are planted area, production and yield which have detail in provincial level. For mid year outlook there are 69 commodities included in the national aggregate model. The data from the forecasted model are adjusted according to field observation and other exogenous information such as government policy.

2.3.6 Remote Sensing and GIS. This technique satellite data is used for producing agricultural statistics and agricultural resources maps. Besides, Geographic Information System or GIS is also used for agricultural development planning. In order to reliability in data collection, OAE has introduced the Geo-information Technology to estimate planted area and production of various crops. The area frame survey technique combines mapping approach and statistical method. Base on the observation of sample points by using satellite imageries and aerial photograph, the specific areas under investigation can be computed. The statistical methods for yield estimation such as crop cutting technique are used in this approach for the calculation of a certain crop production.

2.3.7 Agricultural farm household Socio-economic Survey. The Agricultural farm household Socio-economic Survey is a multi-purpose survey. The content of information to be collected in the survey generally covers land holding and land utilization, characteristics of farm household, income and expenditure both in farm and off-farm, credit and indebtedness situation of farm household, and farm assets.

3. Agricultural Price Gathering by OAE

There are two categories of agricultural prices that Office of Agricultural Economics (OAE) has gathered and distributed to the public. They are the daily price and weekly price.

3.1 Daily Price OAE by the Centre for Agricultural Information (CAI) and the Regional Office of Agricultural Economics (ROAE) . There are 9 ROAEs throughout the whole kingdom. Each of them which covers more than 6 provinces has gathered this kind of price every official day.

The concept of the daily price or spot price is to look at the specific markets, for example the central market selling some commodities, rice mills, siloes, large-scale farms. It is expected that the prices obtained from these places will indicated the price trend and represented the commodity price in the area.

Methods practiced by CAI and ROAEs for obtaining the daily price are as follows:

- 1) CAI and ROAEs determine commodities and their grades,
- 2) CAI and ROAEs select the markets.
- 3) ROAEs gather the prices from selected markets, commodities and their grades, and then key into the computer every official day,
- 4) These prices will be emailed to CAI before 12.00 a.m.,

5) CAI receives the lot of daily prices and checks them for consistency, accuracy and looks for the causes of changed price,

6) CAI distributes the daily price of various commodities to the public, submits to the OAE's executives by email, and sends them to the webpage before 1 p.m.

Since the daily price is the spot price in each place, its presentation by OAE must comprise 3 aspects as follows:

- 1) The market must have the name, address, and phone number,
- 2) The date when data are gathered (by ROAEs) must be displayed,
- 3) The commodities and their grads must be determined clearly to enable the users to compare with other markets under the same commodities and grades.

3.2 Weekly Price

Weekly price is one of the agricultural prices that OAE gathers once a week. Unlike the daily price, the weekly price is gathered by samples and presents in the term of average price for the provinces. It needed to be farm gate price or the price at farm for all agricultural product. This price is objected to submit to Office of the National Economic and Social Development Board (NESDB) for the GDP computation.

Before gathering this category of price, OAE has set up some conditions as follows:

1) OAE will process this kind of price once a week. Therefore, that price must be determined on the day that represents the whole week and is known as the week reference is Monday to Friday. In this respect, CAI has selected a Monday to be the reference day.

2) ROAEs will gather the data by sampling them among the farms of most productive commodities in 2 amphur or district in each province. Four samples or households will be selected in each amphur. As a result, 8 samples or households will be obtained in one province in terms of a single commodity and its grade. The price gathering of this nature is known as the farm gate price.

Another kind of price is to gather the data by sampling them among the gathering sources of most productive commodities in 2 amphur for each province. Meanwhile, each amphur will select 2 samples (gathering sources). By doing so, 4 samples (gathering sources) will be obtained in one province in terms of a single commodity and its grade. The price gathering of this nature is known as the buying source price.

3) The next step is to compute those piles of data by using the Means or Mode in order to have an average price for the provincial level, then ROAEs must select the output from the Means or Mode for sending to the CAI,

4) The relationship between the two sources are the following:

Farm gate price = Buying source price – Surplus – Transport

Surplus = Profit + Operating cost (Since the information on surplus is unlikely, it is normally be omitted.)

Transport means the travel from the location to the buying source location.

Methods practiced by the CAI and ROAEs for obtaining the weekly price are as follows:

- 1) CAI and ROAEs determine commodities and their grades,
- 2) ROAEs determine the source of data,
- 3) ROAEs compute the data into an average price for the provincial level, and send the output to CAI before 4 p.m. every Monday (on web),
- 4) CAI will gather the data from every province, and then compute them by using the weighted average for the regional level and the whole kingdom. In monthly level compute at the end of month by using the simple average.
- 5) CAI checks the prices for consistency, accuracy and looks for the causes of price fluctuation,
- 6) CAI will send the final price to the regional level and the whole kingdom distribute to public before 4 p.m. Wednesday by email and on website.

CAI have been processing this price category for the provincial level up to the whole kingdom by using the computer database format (ORACLE) in terms of time series.

The useful of farm gate price from the OAE of which is related to data utilization and reference as follows :

- ◆ MOAC Exclusive : Hot issue (Monday)
- ◆ OAE : analysis for price movement (Week)
- ◆ MOC : PPI (Month)
- ◆ BOT & OAE : Farm price Index (Month)
- ◆ NESDB, OAE, BOT : Agricultural GDP (3 Month)

◆ Other : Reports

3.3 Farmer Access to Price Information

Currently, there are many channels for farmers to access to price information provided by the OAE as follows:

3.3.1 On-line services through website: www.oae.go.th

3.3.2 Services provided by the Data Operation Center (DOC) at OAE via telephone, facsimile and E-mail address prcai@oae.go.th.

3.3.3 Public medias such as:

- 1) TV Channel 7: Monday – Friday at 6.10 a.m.
- 2) MCOT radio station at AM 1143 kHz. : Monday – Friday at 6.00 - 7.00 a.m.
- 3) Newspaper : Thailand Development

3.3.4 Modern Information Communication Technology for Rapid and Widespread Information Dissemination

1) **Short Message Service (SMS)** : OAE in coordination with DTAC and AIS, the mobile phone service providers, makes available of information expressway for farmers subscribed to those service providers. Presently, there are more than 460,000 subscribers receiving information regarding daily production and prices of commodities by SMS through their mobile phones. This will enable them to create appropriate plans and better deal with the changing situations.

The interested farmers can subscribe by dialing *1677 for DTAC or *47369900 for AIS then making selections by following the instructions.

2) **Computer Kiosk** : OAE has developed and installed the computer kiosks to dispense information to farmers regarding:

- a) Agricultural economic situation and statistics.
- b) Services provided by various agencies in the Ministry.
- c) News and links to other sources for wider range and updated information.

OAE plans to develop computer kiosks as a two-way communication means with farmers and will install them at public places such as Provincial Governor Offices, agricultural commodity central markets and Tambol Municipality Office.

3.3.5 Farmer Accessibility to Information

At present, farmers still have limited potential to access to necessary information due to the infrastructure also.

4. Thailand's Market Information System

Information relating to the operation of agricultural markets covers the market for domestic and international market and also includes of logistics management. Today, there are agencies in both public and private sector operations management market agricultural products. But the operations are not in line for the whole systems. Mostly it focuses on short-term fix fierce during harvested time, that causes the government losses to the state budget in the intervention price for a pawn (or a pledge) but they still can not resolve the problem effectively. Farmers continue to be vexed by the problem of market prices and a slump in almost every year. The work does not cover the problem of long-term sustainable

Creating the marketing information is in order to bring information to the decision for planning and building the linkage of information systems for the farmers. So Farmers can access agricultural information quickly, meet all their needs and have two-way communication. Moreover, they can acknowledge the importance of data and can apply it to use for the decision making of farmers

In the agricultural information systems, head of marketing, is including of:

4.1 Domestic market.

4.1.1 The structure of the domestic market include comprises the elated information:

(1) Production use for domestic consumption.

(2) Farmers selling price or Farm gate price which price varies depending on class quality and time product to market.

(3) Vendors who sell from a Local collection, Recipients buy / wholesaler in the mid-market manufacturing source, The collection represents exporters, recipients buy / wholesale market in central Bangkok and its vicinities, the wholesale market in central province, retailers, bagman, and treasury and wholesale / retail model. The farmers will sell produce to the recipient in buying patterns that differ depending on various kinds of agricultural products and the production objectives. In general, most farmers tend to sell to the local collection or recipients buy / wholesaler in the central market manufacturing source. For the export of agricultural products most farmer are sold their products through the exporter representatives at the point of export collection in conservation. Only small farmers are selling product through

cooperative system or through a system of future market. Today we still do not have traded on the auction market.

4.1.2 Key issues.

(1) Price still slump and park with the price of production factors continued. Labor and shipping costs risen by over. In some years, there is a problem seriously price slump that make the farmers a loss and affect the well-being of farmers. Farmers lack of money for investment and lack the confidence to invest.

(2) Terms of trade are not the same standard. It creates the confusion for farmers and related people. And there is no use of the standard of agricultural products Thailand which set by Ministry of Agricultural and cooperatives to practice seriously.

(3) Operations of market place (central market) in the sources of production are inefficient. The operations make farmers lack bargaining power and the products distribution during the peak of production season can not be done from the source of production, especially for fruits. It causes significant problems of price slump. Most market place (central market) systems are lack of the management effective, lack of the basic facilities and lack of necessary information that will make the market can conduct effectively.

(4) Productivity passes through middleman several steps that affect to the price and the quality. The coordination and support system links trading between manufacturers of origin to the buyers at destination still less. It affects to the quality of product, total operation cost (including transportation cost) and the different of prices between farm prices at the source of production and the price sold to consumers.

(5) Imported from foreign countries are increasing. The number of un-quality products are importing more and grab the share market in Thai markets, especially in fresh fruit and processed products. The quality control monitoring systems of imported fruit is not strict enough. So Thai consumers have to take a risk by eating the imported fruits that still have poisonous residues.

4.2 Export market

4.2.1 Export market structure.

(1) Types of key exports. Exports in fresh, dried, frozen, canned and products of processing

(2) Exporters have established a consortium of trade associations and exporters. Collection of products of the exporter will be exported through a collection agency at the purchase point in the source of production.

4.2.2 Key issues.

(1) The expansion of exports still has limitations. While the Thai side is still not negotiate seriously. So Thailand is not able to expand as the market as it should be.

(2) The number of quality products are insufficient as the demand for the such as fruit takes time to transport and store no longer tenable as well as the steps to export and import fresh fruit, are very difficult and conditions change frequently that troublemaker and increase in export costs. And we lack of coordination to help solve problems associated with the plant quarantine at destination.

4.3 The market structure is divided into 3 markets by the level of the distribution as following.

4.3.1 Farm-level market

It's the market at the source of production such as a garden or farmer's home. People who involve in this market include of collected local merchants, provincial merchants, agent middleman, agents of exporter.

4.3.2 Local market

Local market is the market higher a level than a farm-level market. The nature of this market is both a wholesale market and retail market which located not far from the source of production. It can be divided by the operation period into 2 characteristics which includes temporary local market and permanent local market. The Temporary local market conducted only during the production season while the permanent local market operated trading throughout the year.

4.3.3 Export markets

It is a more complex structure market which the flow of goods has several steps. In the export market, the exporters or the agents of exporter set the point of purchase in order to collect products either from farm-level market or local market. They export these products to international markets.

4.4 Supply chain management and logistics systems management

In the transportation process of agricultural products from production area to end at the consumers. Each supply chain will need to operate activities as well as to manage the delivery of goods in the supply chain to the next order. The important activities that have to operate in each supply chain are logistics system. Therefore, supply chain management and logistics systems are linked and must be done concurrently. The people involved in each supply chain include of

- a. Farmers
- b. Collected merchants.
- c. Cooperative / Group of farmers.
- d. Agent of exporter
- e. Exporter

4.5 The study of distribution of new routes have be done in order to increase the productivity distribution channel from the source to production more and fast. This will absorb the excess production from the market. For example the productivity distribute pass through border neighboring countries.

5. Availability of agricultural statistics database

OAE has set up various agricultural statistics database system by using national and external fund. These agricultural statistics database system include of the agricultural commodities, the agricultural economics, the price of production, the import-export, the socio economics, the early warning system, and the executive information system.

6. Adoption of information technology and internet access.

OAE has set up network system for information exchanges among its various office sites and connection to public. The network system of OAE can be described as follows:

1) Internal Network System which connects all OAE's offices both in Bangkok and in regional areas by using "IPVPN" (Internet Protocol Virtual Private Network) through this intranet, the central and regional Offices can exchange information in forms of voice and data including the transmission of application software. The office buildings in Bangkok are also equipped with "Lan and Wireless Lan" for more convenience in connecting to the system.

2) External Network System is connected to internet network through the Remote Access Server of OAE. OAE's staff can access to external websites in internet for worldwide information exchanges. In addition, the central office is also connected to some other agencies in the Ministry of Agriculture and cooperatives through leased line. These agencies are, for example, the Department of Agricultural Extension, Department of Agricultural and Department of Fisheries.

7. Current dissemination strategies of agricultural statistics (publication, web)

The current dissemination of agricultural statistics and agricultural economics statistics are provided in the report and also through website are as follows:

Reports on survey by OAE comprise of Annual agricultural statistics of Thailand, Annual Thailand foreign agricultural trade statistics, Agricultural survey reports from Crops survey, Cost survey and Livestock survey such as Rice survey report etc., Seasonal forecasts of agricultural production, Farm registration data, Geographical information by remote sensing. It also shows through www.oae.go.th.

Plan to monitor rising prices, follow up the prices of major commodities current and seasonal production or peaking period, especially warning price show Speedometer are as follows :

Critical price = Farm gate Price < Cost

Watching price = Cost < Farm gate Price < cost + profit 20%

Satisfied price = Farm gate Price > cost + profit 20%

As mention above, OAE has to report agricultural price situation to MOAC Exclusive meeting on Monday. OAE has to monitor the price movement, especially continually decreasing price or in the period of watching price. For instance the price of maize is less than 6.52 baht/kg. which is in the period of watching price, therefore, OAE will inform MOAC Exclusive for warning to formulate policy or measure.