THAI AGRICULTURAL STANDARD

TAS 5904-2010

GOOD AGRICULTURAL PRACTICES FOR OIL PALM

National Bureau of Agricultural Commodity and Food Standards
Ministry of Agriculture and Cooperatives

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Oil palm is one of the potential tree crops grown in Thailand and oil palm bunches can be used as raw material in the process of palm oil production as a form of safe edible vegetable oil used in many food and non-food products. The Agricultural Standards Committee deems it necessary to establish the standard for Good Agricultural Practices for Oil Palm to be used as guidance to oil palm growers.

This standard is based on the information of the following documents:

National Bureau of Agricultural Commodity and Food Standards B.E. 2546. Thai Agricultural Standard (TAS 9001-2552). Good Agricultural Practices for Food Crops.

National Bureau of Agricultural Commodity and Food Standards B.E. 2552. Thai Agricultural Standard (TAS 5702-2552). Oil Palm Bunch.

Department of Agriculture. 2547. Oil Palm Technical Paper.

Department of Agriculture. No publication date. Good Agricultural Practices for Oil Palm

NOTIFICATION OF MINISTRY OF AGRICULTURE AND COOPERATIVES
SUBJECT: THAI AGRICULTURAL STANDARD: GOOD AGRICULTURAL PRACTICE FOR OIL PALM
UNDER THE AGRICULTURAL STANDARDS ACT B.E. 2551 (2008)

Whereas the Agricultural Standards Committee deems it necessary to establish an agricultural standard on Good Agricultural Practice for Oil Palm in Accordance with the Agricultural Standards Act B.E. 2551 (2008) to promote such agricultural commodity standard to meet its quality standard and safety.

By virtue of Section 5, Section 15 and Section 16 of the Agricultural Standards Act B.E. 2551 (2008), the Minister of Agriculture and Cooperatives hereby issues this Notification on Establishment of Agricultural Standards: Good Agricultural Practice for Oil Palm (TAS 5904-2010) established as voluntary standard, details of which are attached herewith.

Notified on 4 October B.E. 2553 (2010)

Mr. Theera Wongsamut
Minister of Agriculture and Cooperatives

THAI AGRICULTURAL STANDARD

GOOD AGRICULTURAL PRACTICES FOR OIL PALM

1 SCOPE

This agricultural standard establishes good practices for the oil palm production. It provides detailed guidance covering from field operation in the plantation to transportation of oil palm bunches to the collection center (ramp) or mill in order to increase production efficiency and to ensure good quality and safe raw material of oil palm bunches or fresh fruit bunches (FFB) suitable for palm oil production as well as taking into account the environmental impact and occupational health and safety of the workers.

This agricultural standard shall be jointly implemented with TAS 5702-2553, Thai Agricultural Standard for Oil Palm Bunch.

2 DEFINITIONS

For the purpose of this standard:

2.1 Oil palm means tree crop with the scientific name of *Elaeis guineensis* Jacq. that produces fruit bunches by hybrid of Tenera for commercial purpose.

2.2 Fertilizer means organic material, synthetic organic material, inorganic or microorganism no matter of its being natural formation or processing for uses as plant nutrients by any means of production methods or causing any chemical, physical or biological changes in soil conditions to have value in promoting plant growth.

2.3 Hazardous substance means chemical or other substance including chemical product, microorganism and toxin excreted by microorganism that may be harmful to human, animal, plant, properties or environment.

2.4 Pesticide means any hazardous substance used in agriculture regulated by the Department of Agriculture in accordance with the Ministry of Industry notification referred to as types and lists of hazardous substance promulgated under the Hazardous Substances Act B.E. 2535 (1992) and its amendments.

2.5 Pest means living organism such as disease, insect, animal and weed that is damaging to plant.

3 REQUIREMENTS AND INSPECTION METHODS

Requirements and inspection methods shall be as Table 1.

Table 1. Requirements and Inspection Methods

(Section 3)

Items	Requirements	Inspection Methods
1. Water Source	1. Water source used on farm shall be located in an area safe from contamination of hazardous substances	1. Visual inspection of the environmental setting, in case where there is risk involved, the quality of water shall be tested.
2. Planting Area	2. Planting area shall not pose any excessive risk of hazardous substance that could cause undesirable residue or contamination to the produce over the tolerance level promulgated by relevant laws and regulations	2. Visual inspection of the environmental setting, in case where there is risk involved, the quality of soil shall be tested.
3. The Use of Pesticide	3. In case where pesticide is used, follow the recommendations or refer to the instruction manual of the Department of Agriculture, Ministry of Agriculture and Cooperatives or use accordingly to the recommendations given on the label of product registered with the Department of Agriculture	3.1 Inspect place of pesticide storage 3.2 Check record information on pest survey and use of pesticide 3.3 In case where there is evidence to believe that the use of pesticide is not led to adhered recommendations, sample fruits for residue analysis.
4. Pre-harvest Quality Management 4.1 Variety Preparation	4.1 Oil palm seed or seedling shall meet quality requirements of the variety and come from the reliable supply source registered with the Department of Agriculture, Ministry of Agriculture and Cooperatives	4.1 Check record on sources of oil palm supply
4.2 Planting	4.2.1 Design appropriate lining and spacing for planting to the area and variety	4.2.1 Visual inspection of oil palm field plot

Items	Requirements	Inspection Methods
	4.2.2 Manage oil palm plantation properly	4.2.2.1 Visual inspection of plantation setting and vegetative development of oil palm health 4.2.2.2 Visual inspection of produce and/or check record on harvesting of oil palm bunches
4.3 Pest Control	4.3.1 Survey the infestation of pests, e.g. rats, leaf eating caterpillars, rose beetles, rhinoceros beetles and other pests in the field plot regularly	4.3.1 Check record on pest survey
	4.3.2 Apply appropriate methods to control pests when the level of economic threshold is reached.	4.3.2 Check record on pest control and/or visual inspection of damage from pests
	4.3.3 In case where pesticide is used, the application shall be in line with Item 3	4.3.3 Check record on pesticide application
4.4 The Use of Fertilizer	4.4 Chemical fertilizers shall be chosen from those registered with the Department of Agriculture, Ministry of Agriculture and Cooperatives	4.4. Check record on sources and application of chemical/organic fertilizers
5. Harvest and Post-harvest Handlings 5.1 Harvesting	5.1.1 Harvest mature oil palm bunches	5.1.1 Visual inspection of ripe fruit bunches of oil palm
	5.1.2 Collect all loose fruits from field plot	5.1.2 Inspect loose fruits in field plot
5.2 Post-harvesting	5.2 Avoid any operation that causes contamination to the oil palm bunches	5.2 Visual inspection of oil palm bunches
6. Transportation	6.1 Collection point in the plantation and vehicles shall be cleaned and caused no contamination to oil palm bunches	6.1 Visual inspection of collection point of oil palm bunches and vehicles

Items	Requirements	Inspection Methods
	6.2 Method of transportation shall not cause any damage to oil palm bunches	6.2 Check record on harvesting and transportation and visual inspection of method of transportation
	6.3 Deliver oil palm oil palm bunches to the collection center (ramp) or mill within 24 hours	6.3 Check record on harvesting and transportation
7. Personal Health	7.1 Provide appropriate health care to workers	7.1 Observe workers conditions or interview
	7.2 Provide appropriate welfare to workers	7.2 Observe workers conditions or interview
8. Record Keeping	8.1 Record the following information (1) Sources of oil palm variety (2) Pest survey and use of pesticide (3) Sources of production inputs, for example, pesticides and fertilizers (4) Fertilizer application (5) Harvesting and transportation of oil palm bunches The detailed contents of the abovementioned information shall be made available in accordance with the record forms provided in Appendix B	8.1 Check records
	8.2 Records shall be kept for not less than 2 years	8.2 Check historical records

4 Guidance for Good Agricultural Practices for Oil Palm

Recommendations on good agricultural practices for oil palm are aimed to provide growers to practice every step of production processes starting from cultivation to transportation of oil palm bunches to collection center (ramp) or mill and to ensure good quality and safe oil palm bunches produce suitable for production of palm oil. The details are explained in Appendix A.

Appendix A

Guidance for Good Agricultural Practices for Oil Palm (Section 4)

A.1 Water Sources

A.1.1 Water supply to oil palm cultivation shall be obtained from sources that are not exposed to any contamination risk and shall have appropriate water quality suitable to be used in agriculture. The use of effluent from industries or other activities that cause hazardous contamination, e.g. water contained pesticide residues, heavy metals and pathogenic microorganism, shall be avoided . In case where there is a need to use such water, grower shall provide evidence or proof showing that such water has been treated and can be used in agriculture. In addition, the operation shall take into consideration the outcome of unfavorable impact against environment and local community.

A.1.2 Grower shall collect water sample at least once during the early stage of setting up production system and once again in the situation whenever environmental risk for use of water in the production processes is uncertain. The samples are sent to government laboratory or certified laboratory for analysis and the results are kept as evidence. The details of soil and water analysis shall be recorded on the form as shown in example form No. 4 of Appendix B. (Record Form on General Information of Owner)

A.1.3 Water supply for agriculture use shall not come from the environmental destructed water sources.

A.2 Planting Area

A.2.1 Areas for oil palm planting shall be in compliance with relevant laws and regulations and land acquisition does not diminish the legal rights or customary rights of other users. Grower shall provide map/farm layout showing the boundary of customary rights and being accepted by all concerned parties. Moreover, the planting area shall be selected appropriately according to guidelines of the relevant government agencies.

A.2.2 Code number of field plots and information on the name of owner, address, name of responsible person (if any), location and layout of field plots, oil palm variety, land use history of at least 2 years, land holdings history and other detailed information shall be provided as in example form No. 4 of Appendix B (Record Form on General Information of Owner).

A.2.3 Planting area shall be area with no hazardous substance that causes residue or contamination of toxic waste to the produce. In case where planting location is near or in the vicinity of industrial zone or area containing hazardous substance risk of residue or contamination, grower should take soil samples for testing at least once at the early stage of setting up production system by sending soil samples to the government laboratory or certified laboratory and analytical reports are kept as evidence.

In case where oil palm is planted in the contaminated area of heavy metal risk, soil quality shall be checked against the Notification of National Environment Board No. 25 Entitled the Determination of Soil Quality Standard.

A.3 The Use of Pesticide

A.3.1 Pesticides shall be used in accordance with the Department of Agriculture recommendations or instructions given on the product label registered with the Department of Agriculture, Ministry of Agriculture and Cooperatives. The application of pesticide shall be coincided with pests found from the survey. The detailed information shall be recorded as the example form No. 6 attached in Appendix B. (Record form on Pest Survey and Pest Control)

A.3.2 Pesticides used shall be legally registered and adhered with registration number and instruction use for crops specified on the product label. Banned pesticides shall not be used, particularly those prohibited from manufacturing, import, export, or in possession according to the Hazardous Substances Act B.E. 2535 (1992) and its amendments, including those prohibited by the trading partners or required by importing country. Nevertheless, such pesticides shall not be banned domestically.

A.3.3 Instructions on the label of product shall be read thoroughly in order to understand the properties of pesticide and how to use it properly prior to application.

A.3.4 The worker or operator responsible for the pesticide application shall acquire knowledge on oil palm pests, type of pesticide and its dosage, and sprayer and nozzle types including proper method of spraying. The worker or operator shall check sprayer and equipment to be ready for use efficiently in order to protect himself from pesticide exposure. The worker or operator shall wear appropriate clothing and use of personal protective equipment (PPE) such as mask, rubber gloves, caps or hats and boots so as to prevent exposure to pesticide. Avoid the mixture of more than two types of pesticides unless it is recommended or technically approved method.

A.3.5 Pesticide shall be prepared according to the dosage instruction and mixed with water thoroughly prior to spraying. The spraying should be done in the morning or in the evening while the wind is calm. Avoid spraying during bright sunny or strong windy day. During spraying, the operator shall be at the upwind position at all times. Precaution shall also be taken on pesticide drifts to the surrounding neighbourhood fields and environment.

A.3.6 Pesticide shall be sufficiently prepared for one application. There shall be no pesticide solution left over in the sprayer tank.

A.3.7 After pesticide container is emptied, it shall be cleaned with water by using a triple rinse cleaning method. The solution then shall be poured into the sprayer tank and sprayed to the permitted crops, according to the product label, or to any specified area, in which shall pose no risk of contact to the produce or contamination to water sources.

A.3.8 Crash and discard empty container at the designated disposal site or disposal of by burying the rubbish at sufficient depth to avoid interference from animal digging and keep at least 50 meters from water sources and housing areas. The burning of empty container is prohibited.

A.3.9 After each pesticide spray, the operator shall clean his body by taking bath and shampoo and change clothing immediately. The used clothes shall be separately washed from routine laundry.

A.3.10 The remaining pesticide that cannot be used up in one application shall be tightly sealed and kept in a pesticide storage place.

A.3.11 Pesticides shall be kept in a place that is secure, safe and protected from exposure to sunlight and rainfall. The storage place is provided with good ventilation.

A.3.12 The storage place shall have physical separation among pesticides and other chemical products, such as fuel, to prevent contamination of pesticide to produce and environment. In addition, the pesticide containers that have already been opened are not allowed to transfer their contents from the original containers.

A.3.13 Each kind of pesticide shall be marked with clear identification tag and categorized the content by types. Pesticides shall be separated from fertilizers, plant growth promoters, plant and soil amendments and personal protective equipment (PPE).

A.3.14 The storage place shall be equipped with preventive gears, such as saline solution for eye-wash, sand, fire extinguisher etc.

A.3.15 Pest control measures shall be appropriately laid down and based on the monitoring survey of pest incidence.

A.3.16Appropriate Integrated Pest Management (IPM) is carried out to minimise the use of pesticides. In addition, IPM means adopted management system for pest control by organising details on changes in the development of pest populations and concerned environment and making use of all appropriately integrated techniques and methods whilst suppressing pest populations to the economic threshold level.

A.3.17 Avoid repeatedly use of the same pesticide in order to slow down the resistance of pest against such pesticide.

A.3.18 Grower and worker should be well aware of precautionary protection towards the danger of pesticides use and demonstrate their knowledge and experience in first aid.

A.3.19 Grower should have the instruction document on accident or emergency displayed clearly at the chemical storage place.

A.4 Pre-harvest Quality Management

A.4.1 Variety Preparation

Select oil palm seeds or seedlings that meet the quality standard and traits and come from a reliable source registered with the Department of Agriculture, Ministry of Agriculture and Cooperatives in accordance with the Plants Act B.E. 2518 (1975) and its amendments.

A.4.2 Planting

A.4.2.1 Lining and spacing of oil palm shall be laid out and coincided with the topographic area and a system of drains. The first row of planting point directs to the north-south position so that every palm is sufficiently and evenly exposed to sunlight for photosynthesis. If oil palms are planted on slope land, soil erosion control measures such as terracing should be implemented to prevent soil loss from run-off or soil erosion.

Planting palm on lowland and peat land should have appropriate water management.

A.4.2.2 Oil palm spacing shall have equilateral triangular pattern in relation to the variety and field plot size, such as the spacing of 9 by 9 by 9 meters equidistant from other palms around them. Planting density in one unit area (rai) should consist of 22 to 24 palms due to too narrow or widen spacing has negative impact on yield decency.

A.4.2.3 Management to promote oil palm vegetative growth and fruit development

(1) Fertilizer shall be applied according to the development stages of palms. Fertilizer application to promote fruit bearing stage shall be applied regularly during early and late rainy season by following the technical recommendations. Record on fertilizer application shall be provided as example form No. 8 of Appendix B. (Record Form on Fertilizer Source and its Application)

(2) Soil and frond (leaves) samples shall be collected for analysis of plant nutrients as additional information in order to apply a balanced fertilization according to the precise technical recommendations based on results of such soil and frond analysis.

(3) Palm frond pruning shall be managed in such a way that there are only two fronds left to support fruit bunches (subtending from the fruit bunch). The pruned fronds then shall be stacked around planted palms or spread in neat lines in each alternate inter-row to replenish organic matter to soil and to enhance moisture retention.

(4) Organic residues or empty fruit bunches (EFB) shall be utilized as mulch around each palm to preserve soil moisture.

A.4.2.4

In case where there is replanting, grower should operate as follows:

(1) Destroy old vegetation according to the technical recommendations

(2) Manage to clean up old vegetation to prevent harbouring pests

(3) There shall be no burning of old vegetation

(4) Recycle old vegetation for other utilisation such as making compost etc.

A.4.3 Pest Control

A.4.3.1 Grower shall acquire knowledge of important pests and their life cycles as well as appropriate pest control taking into consideration the impacts on environment and ecosystem. The details of important pests are obtained from official recommendations.

A.4.3.2 Survey and forecast of pest infestation, such as rats, leaf eating caterpillars, rose beetles, rhinoceros beetles and other pests, at different stages of their life cycles shall be regularly conducted and monitored. These information shall be recorded on the form shown in example form No.6 of Appendix B(Record Form on Pest Survey and Pest Control).

A.4.3.3 In case where pest infestation or outbreak is detected at the economic threshold level resulting in the adverse impact to yield, pest control shall be applied according to the proper technical recommendation as well as keeping information on the record form as example form No.6 of Appendix B (Record Form on Pest Survey and Pest Control).

A.4.3.4 Dead standing palms or felled palms shall be destroyed from the field plot according to the recommendations of relevant government agencies in such a way that there shall be no destruction to environment and achieving the objective of elimination of breeding ground for rhinoceros beetles as well.

A.4.3.5 In case where pesticide is used, Requirements under Item 3 shall be followed.

A.4.3.6 In case where damaged fruit bunches caused by pests are found, they shall be culled off.

A.4.4 The Use of Fertilizer

A.4.4.1 The chemical fertilizer used in the farm shall be registered with the Department of Agriculture, Ministry of Agriculture and Cooperatives and chosen the appropriate kind and rate recommended by the Department of Agriculture. In case where there is evidence or suspect that the fertilizer is of inferior quality and of risk to the development of palm, such fertilizer shall be analysed.

A.4.4.2 The organic fertilizer used in the farm shall be fully decomposed through complete fermentation or other processes.

A.4.5 Agricultural Equipment and Tools

A.4.5.1 Provide a list of equipment and tools and their storage.

A.4.5.2 Provide appropriate and sufficient number of equipment and tools.

A.4.5.3 Provide storage place for equipment and tools, orderly arranged, secured and easily accessible.

A.4.5.4 Check the condition of equipment and tools such as sprayer and harvesting tools prior to working in the plantation. The equipment and tools that require precision in operation, such as nozzle of spraying equipment, shall be calibrated regularly. In case deviation from its tolerance standard is found, such equipment shall be taken either to repair or replace so as to maintain its function of operation up to the required standard.

A.4.5.5 Provide cleaning, before and after operations, to the equipment and tools including containers for collecting and transporting of oil palm bunches prior to keeping in storage.

A.4.6 Management of Waste and Residues

Separate clearly the types of garbage such as empty cardboard boxes, plastics, glasses, used oil and fuel, chemicals and plant debris etc. Garbage bins shall be provided in sufficient number or identified clearly by types and disposal areas.

A.5 Harvesting and Post-harvest Handlings

A.5.1 Harvesting

A.5.1.1 Harvest only ripe fruit bunches, the bunch stalks shall be trimmed off not to exceed 5 centimeters.

The consideration of fruit maturity can be applied by the combined harvesting criteria as follows:

(1) Mature bunch shall have at least 10 detached loose fruit (LF) per bunch on the ground.

(2) Immature green fruit will turn orange, whereas immature black fruit will turn red, when ripen.

A.5.1.2 Method of harvesting shall not cause any damage to the fruit quality. Oil palm bunches shall be carefully cut with appropriate lightweight and durable tools with suitable height.

A.5.1.3 Collect all loose fruit (LF) on the ground of the field plot to prevent unqualified palm seed germination.

A.5.2 Post-harvest handling shall be practiced as follows:

A.5.2.1 Collecting, resting and storing oil palm bunches within the field plot as well as loading the produce to the collecting point of the plantation shall be carefully managed to prevent any damage to the fruit quality.

A.5.2.2 Record on oil palm harvesting and grading shall be provided as example form No. 9 of Appendix B. (Record form on Harvesting and Transporting of Oil Palm Bunches)

A.6 Transportation

A.6.1 Oil palm bunches shall be delivered to the collecting center (ramp) or mill within 24 hours of harvest and carefully managed to obtain optimum quality of fruits for palm oil extraction.

A.6.2 Vehicle for loading of oil palm bunches shall be clean. In case where the vehicle used for handling soils, animals, animal manures, chemical fertilizers and pesticides, the vehicle shall be appropriately cleaned prior to delivering oil palm bunches.

A.6.3The collecting site shall be clean and hygienic such that it is not located near the garbage dumping area and storage place for chemicals, chemical and organic fertilizers. The site shall be well ventilated, no accumulation of heat, and able to protect the collected oil palm bunches from disease-carrier animals and other pets.

A.6.4 Record on harvesting and transporting shall be provided as example form No. 9 of Appendix B. (Record Form on Harvesting and Transporting of Oil Palm Bunches)

A.7 Personal Health

A.7.1 Appropriately provide personal health care to workers, for instance sick workers shall report to the responsible operator, as well as health check-up for workers who expose to chemical pesticides.

A.7.2 Appropriately provide welfare to the workers, such as adequate amenities for housing, water supplies, and first aid.

A.8 Record Keeping

A.8.1 Operating procedures shall be documented with the list of significant documents and record keeping for the benefits of Good Agricultural Practices for Oil Palm certification and traceability of oil palm bunches at the farm.

A.8.2 Record forms and documents shall be updated. In case where there is more than one planting plot, the record form shall be separately recorded by field plot number and signed every time by the operator or recorder.

A.8.3 Record keeping shall be maintained at least 2 consecutive years of production cycles or according to the trading partner requirements for the purpose of traceability. The record forms and list of required documents shall be as follows:

A.8.3.1 Source of acquired oil palm varieties

A.8.3.2 Record on pest survey and pesticide application.

A.8.3.3 Record on sources of acquired production inputs, such as pesticides and fertilizers by indicating the details on dates, quantity, name of fertilizer dealers, in particular, organic fertilizers as well as biological fertilizers. In case where the fertilizer cannot be traced to the source of origin or obtained from an unreliable source, such fertilizer shall be sent to the government agencies or reliable laboratory for analysis of the hazardous substances contamination such as pesticides, heavy metals and the analytical report shall be kept as evidence.

A.8.3.4 Record on the use of fertilizers

A.8.3.5 Documents or evidence showing the analytical results of soil, water and production inputs

A.8.3.6 Record showing plantation site, date of planting, date of harvesting, quantity of oil palm bunches harvested and selling places for the benefits of productivity improvement and traceability. In addition, the traceability means ability to trace back and forth of input sources, oil palm varieties and oil palm bunches from various production processes and management practices of the grower.

Appendix B

RECORD FORMS

Example Form No. 1

Record Form on the Report Results of Soil and Water Analysis

(Section A.1.2 and A.2.2)

Name of owner (Mr./Ms./Miss)..... Family name.....
Registration number or identification number of owner □□□□□□□□□□□□□

Plot Number	Date of Collected Sample		Required Details	Collector Name	Name of Lab	Date	
	Soil	Water				Sent Out	Received

Note: All evidence of report results on soil and water analysis shall be kept

Example form No. 2

Record Form on General Information of Owner (Page 1 of 4)

(Section A.2)

Information for the Year.....

Name of owner (Mr./Ms./Miss)..... Family name.....

Registration number of owner □□□□□□□□□□□□ Total planted area (rai) ……

Number of plot……..... plot number …… Plot Code ……..…..……

Owner address: Village name.....Village number..... Home address .....

Road..... Soi.....

Tambon..... Amphur ..... Province .....

Postal code ..... Tel ..... Fax .....

E-mail .....Website.....

Name of contact person/representative (Mr./Ms./Miss)..... Family name ……

Address: Village name..... Village number..... Home number.....…

Name of road..... Name of lane.....

Tambon..... Amphor..... Province.....

Postal code..... Tel..... Fax.....

E-mail ..... Website.....

Name of contact person (Mr./Ms./Miss).....Family name.....

Land use history

.....

.....

.....

Signature of owner .....

(.....)

Signature of contact person/ representative .....

(.....)

Example Form No. 3

Record form on General Information of Owner (Page 2 of 4)

(Section A.2)

Name of owner (Mr./Ms./Miss)..... Family name.....

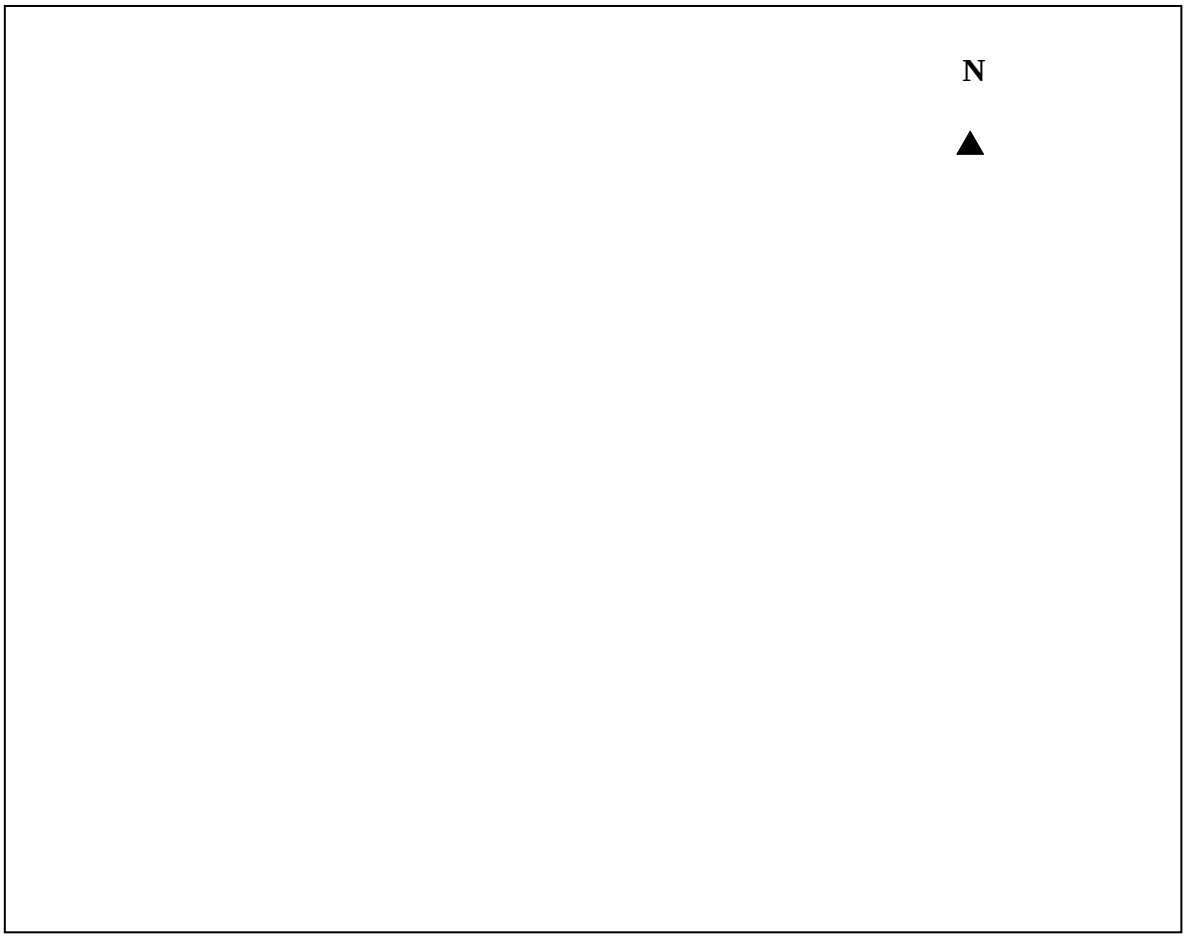
Registration number of owner □□□□□□□□□□□□ Plot code .....

Location of plot: Home number.....Village number…… Tambon .....

Amphur ..... Province .....Postal code.....

Total number of plots ..... Total planted area (rai) .....

Map of the field plots showing roads and significant locations in the vicinity of oil palm plantation to facilitate traveling to the plot



Example Form No. 4

Record Form on General Information of Owner (Page 3 of 4)

(Section A.2)

Plot number..... Production year..... Plot code.....
Location of plot: Home number..... Tambon .....Amphur .....
Province ..... Total planted area (rai) .....

1.1 Oil palm variety for planting

- Variety name …… Planting space …… Number of palms … Date of planting (Age of oil palm) ….
- Variety name …… Planting space …… Number of palms … Date of planting (Age of oil palm) ….
- Variety name …… Planting space …… Number of palms … Date of planting (Age of oil palm) ….
- Variety name …… Planting space …… Number of palms … Date of planting (Age of oil palm) ….

1.2 Water supply

- Water quality □ with result of water analysis □ without result of water analysis
- System of water supply..... Rate of water supply..... L/hr

1.3 Soil

- Soil quality □ with result of soil analysis □ without result of soil analysis

-Type of soil.....

1.4 Land use history prior to present planting (at least 2 years)

□ Never been used for agricultural purposes

□ Have been used in agricultural sector

Name of crops previously grown. Year 1.....
Year 2.....
Year 3.....

1.5 History of pest infestation/outbreak and control

- Name of pest …….. Year of infestation/outbreak …….
  Estimated area of infestation/outbreak (%) ……. Pest control ……..
- Name of pest …….. Year of infestation/outbreak …….
  Estimated area of infestation/outbreak (%) ……. Pest control ……..
- Name of pest …….. Year of infestation/outbreak …….
  Estimated area of infestation/outbreak (%) ……. Pest control ……..
- Name of pest …….. Year of infestation/outbreak …….
  Estimated area of infestation/outbreak (%) ……. Pest control ……..
- Name of pest …….. Year of infestation/outbreak …….
  Estimated area of infestation/outbreak (%) ……. Pest control ……..

1.6 Other information

……
……

Example Form No. 5

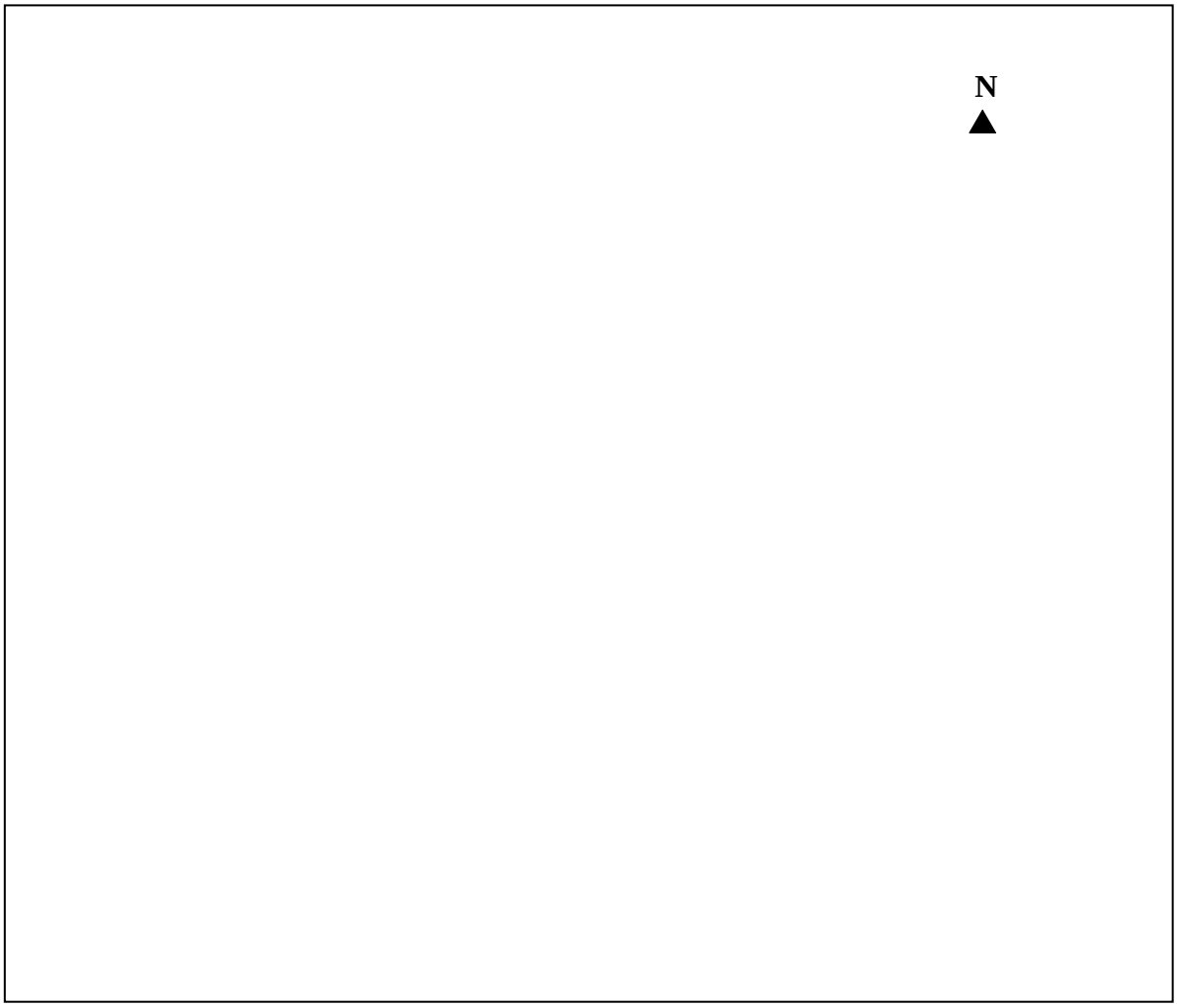
Record Form on General Information of Owner of Land Holdings (Page 4 of 4)

(Section A.2)

Plot number ……..……Year of operation ……

Plot layout identifying the followings:

- Planted area
- Fragile environmental areas
- Storage place, facilities for mixing pesticides and cleaning equipment and tools used with chemical pesticides
- Area showing post-harvest treatment of chemicals
- Area or facility for storage and making compost and soil amendments
- Reservoir, drainage and station of water discharge



Example Form No. 6

Record form on Pest Survey and Pest Control

(Section A.4.3)

Name of owner (Mr./Ms./Miss) .....Family name .....

Identification number of owner □□□□□□□□□□□□ Plot code ……..

Planted area..... Oil palm name..... Variety name …….…… Field plot number ……
Total plot(s) …….…… Number of palms ...…… Year of operation ……

Production Process	Pest survey				Use of Pesticide					Other Pest Control Techniques	Operator Name
	Survey Date	Results			Date Applied	Common names	Active Ingredients (%)	Rate Applied*	Total Quantity Applied		
		Pest name	None	Found (quantity)							

Note: Specify the rate applied in accordance with the application such as kilogram per palm or milliliter per 20 liters of water or cc per 20 liters of water

Example Form No. 7

Record form on Production Inputs and Details

(Section A.4.4)

Name of owner (Mr./Ms./Miss)..... Family name.....

Registration number or identification number of owner □□□□□□□□□□□□□□

Field Plot Numbers	Line Item	Name of Production Inputs	Date of Purchase	Quantity	Source of Supply	Specific Details	Name of Recorder

Example Form No. 8

Record Form on Fertilizer Source and its Application

(Section A.4.4)

Date	Type of Fertilizer	Quantity Use	Method of Application	Stage of Growth*

Note: Stage of growth means fertilizing at the stages of palm development and fruit bearing

Example Form No. 9

Record Form on Harvesting and Transporting of Oil Palm Bunches

(Section A.5/A.6)

Name of owner (Mr./Ms./Miss)..... Family name.....

Registration number or identification number of owner □□□□□□□□□□□□□

Field pot number..... Year of operation (Year of planting).....

Method of harvest.....

Date of Harvest	Total Bunch Weight (kg or tonne)	Bunch Damage (%)				Sold to	Grade	Price (Baht/kg)
		Pest	Rotten	Raw	Others			

Signature of owner .....

(.....)

Appendix C

Units

The units and symbols used in this Agricultural Commodity Standard and the recognized units of SI (International System of Units or *Le Systéme International d' Unités*) to be used are as follows:

Measurement	Name of Units	Symbols
Length	meter	m
	centimeter	cm
Volume	liter	L