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MS 1784-3 (2005) (English): GOOD AGRICULTURAL PRACTICE (GAP) - PART 3: RUBBER (HEVEA BRASILIENSIS MUELL. ARG.)

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# MALAYSIAN STANDARD

MS 1784 : PART 3 : 2005

## GOOD AGRICULTURAL PRACTICE (GAP) -PART 3 : RUBBER (HEVEA BRASILIENSIS MUELL. ARG.)

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#### **Committee representation**

The Food and Agricultural Industry Standards Committee (ISC A) under whose authority this Malaysian Standard was developed, comprises representatives from the following organisations:

Department of Agriculture Department of Standards Malaysia Federal Agricultural Marketing Authority Federation of Malaysian Manufacturers Malaysian Agricultural Research and Development Institute Malaysian Association of Standards Users Malaysian Palm Oil Association Ministry of Agriculture and Agro-based Industry Ministry of Health Malaysia Ministry of International Trade and Industry Universiti Kebangsaan Malaysia Universiti Putra Malaysia

The Technical Committee on Good Agricultural Practice for Crop Commodities which supervised the development of this Malaysian Standard consists of representatives from following organisations:

Cameron Highlands Floriculturists Association Commercial Orchid Growers Association of Malaysia Department of Agriculture Kuala Lumpur Department of Agriculture Sabah Department of Agriculture Sarawak Federal Agricultural Marketing Authority Golden Hope Plantations Berhad Malaysian Agricultural Research and Development Institute Malaysian Herbal Corporation Malaysian Palm Oil Association Malaysian Palm Oil Board Malaysian Rubber Board Ministry of Agriculture and Agro-based Industry Ministry of Health Malaysia Ministry of Plantation Industries and Commodities National Association of Small Holders Persekutuan Persatuan-persatuan Pekebun-pekebun Sayur-sayuran Malaysia SIRIM Berhad (Secretariat) Q A Plus Asia Pacific Sdn Bhd

The Task Force on Rubber which developed this Malaysian Standard consists of representatives from the following organisations:

Advanced Agroecological Research Sdn Bhd Federal Land Consolidation and Rehabilitation Authority Berhad Federal Land Development Authority Golden Hope Plantations Berhad Malaysian Estate Owners Association Malaysian Rubber Board National Association of Small Holders Rubber Industry Development Authority

#### FOREWORD

This Malaysian Standard was developed by the Technical Committee on Good Agricultural Practice for Crop Commodities under the authority of the Food and Agricultural Industry Standards Committee. A Task force on Rubber was established in drafting this standard.

This Malaysian Standard is intended to be used in certification schemes to recognise and certify farms which adopt Good Agricultural Practice (GAP) for rubber in Malaysia.

The structure and presentation of this Malaysian Standard follows MS 1784:2005, *Crop* commodities – Good Agricultural Practice (GAP). Where elements of MS 1784:2005 are not applicable to this Malaysian Standard, they are stated as such.

This Malaysian Standard consists of the following parts under the general title, Good Agricultural Practice (GAP)

- Part 2: Oil Palm (Elaeis Guineensis Jacq.)
- Part 3: Rubber (Hevea Brasiliensis Muell. Arg.)
- Part 4: Cocoa (Theobroma cacao)
- Part 5: Pepper (*Piper nigrum* L)

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

### GOOD AGRICULTURAL PRACTICE (GAP) -PART 3: RUBBER (*Hevea brasiliensis* Muell. Arg.)

#### 1. Scope

This Malaysian Standard defines the essential elements for sustainable rubber cultivation that is legally compliant, environmentally sound, socially acceptable and economically viable to ensure quality produce that is safe and suitable for utilisation.

#### 2. Normative references

The following normative references are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the normative references (including any amendments) applies.

MS 463, Specification for rubber (Hevea brasiliensis L.) seed for commercial planting

MS 549, Specification for rubber (Hevea brasiliensis L.) clonal materials for planting

Enviromax Planting Recommendations, Malaysian Rubber Board

Environment Quality Act 1974 and Environment Quality Regulations 1979

Pesticides Act 1974

Occupational Safety and Health Act 1994 and Regulations

Workers' Minimum Standards of Housing and Amenities Act 1990

#### 3. Definitions

For the purposes of this standard, the following definitions apply.

#### 3.1 Essential element

Critical, main or key factor.

#### 3.2 Rubber growers

Individuals and/or companies involved in rubber commercial production. Rubber growers in this standard refer to plantation owners and small holders.

#### 3.3 Legally compliant

Adherence to all existing national and state legislation.

#### 3.4 Socially acceptable

Meeting and addressing issues and concerns on the welfare and safety of persons working, living in and around the farm.

#### 3.5 Economically viable production

Production that gives positive sustainable returns on a sustainable basis.

#### 3.6 Sustainable crop production

A holistic, systems-oriented approach to farming that is efficient in resource management and focuses on the interrelationship of social, economic and environmental processes. This approach is based upon environmentally sound, socially responsible and economically profitable practices.

#### 3.7 Environmentally sound

Farm practices that do not have adverse effects on the environment, e.g. chemical pollution of water ways and effluent discharge.

#### 3.8 Quality produce

Produce that is wholesome and safe for consumption and/or suitable for utilisation.

#### 3.9 Pests

Organisms capable of causing injury and loss to rubber plants. These organisms include insects, other invertebrates, fungi, bacteria, viruses, weeds and vertebrates.

#### 3.10 Integrated Pest Management (IPM)

A management system that uses suitable techniques and methods in a manner as compatible as possible to maintain pest population at levels below those causing economic injury.

#### 3.11 Competent agriculturist

Individuals with formal training in agriculture and/or organisations with relevant expertise in rubber cultivation.

#### 4. Requirements

#### 4.1 Traceability

The produce shall be traceable to the farm where it has been originally produced.

#### 4.2 Record keeping and internal audit

#### 4.2.1 Record keeping

Farms shall keep up-to-date records. All records shall be maintained and retained for at least 12 months unless stipulated by any specific legislation. Record keeping system shall be established in which all the essential elements are captured. The records shall be accessible and audited. All farm records shall be treated as confidential.

#### 4.2.2 Internal audit

Internal audit shall be carried out at least once a year based on the requirements of this standard. It shall be completed and documented. Corrective actions need to be implemented and documented.

#### 4.3 Planting materials and rootstocks

**4.3.1** Choice of planting materials or rootstocks should meet requirements as agreed between crop producers and suppliers (e.g. visual appearance, shelf life, agronomic performance, environmental impact, minimal dependence on agrochemicals).

**4.3.1.1** Recommended rootstocks shall be used for grafting. Planting materials shall be produced in accordance to the minimum standard as provided in MS 463 and MS 549.

**4.3.1.2** Records of all clones and sources of seeds for rootstocks and budsticks shall be kept and made available for inspection.

**4.3.1.3** All plants in the source-bush or budwood nurseries shall be properly labelled with names of clones.

**4.3.1.4** Measures shall be taken to maintain purity of the clones in the source-bush or budwood nurseries through periodic identification by clone inspectors.

**4.3.1.5** Purchase of planting materials shall be made only from nurseries licensed by the Malaysian Rubber Board.

**4.3.1.6** Rubber clones or clonal seedlings to be planted should be guided by the Malaysian Rubber Board Enviromax Planting Recommendations.

**4.3.1.7** Clones and seedlings used for planting in the farm should preferably possess resistance or tolerance to major pests and diseases, so as to minimise utilisation of pesticide.

**4.3.1.8** Only recommended types of planting materials, such as two-whorl polybagged buddings, advanced planting materials, etc, should be used.

**4.3.2** The use of genetically modified planting materials shall be avoided unless expressed permission has been given by the relevant authorities and should comply with existing regulations in the country of the final consumers.

**4.3.3** Where protected varieties are used, the farms shall respect intellectual property rights legislation on plant variety protection.

**4.3.4** If chemical treatments are carried out, the use of these treatments should be justified and shall be recorded.

#### 4.4 Site history and site management

#### 4.4.1 Site history

**4.4.1.1** A recording system shall be established for the site history and the layout of fields of their crop history.

**4.4.1.2** For all new rubber plantings, a risk assessment shall be carried out by competent agriculturist, taking the following into account:

- a) prior use of the land;
- b) potential impacts of the production on adjacent crops and areas; and
- c) potential impact of activities carried out at adjacent areas.

The information of the risk assessment shall be recorded.

4.4.1.3 All new rubber plantings should not be located more than 1 000 m above sea level.

**4.4.1.4** All new rubber plantings should not be cultivated on land more than 25 ° slope unless as specified by local legislation.

#### 4.4.2 Site management

**4.4.2.1** The farm management shall demonstrate that it has legal rights to the cultivation of the land and all necessary regulatory approvals.

**4.4.2.2** Where rubber is grown on sloping land (within the permissible level), appropriate soil conservation measures shall be undertaken to prevent soil erosion and silt deposition into drains, waterways, etc.

4.4.2.3 A visual identification or reference system for each field shall be established.

#### 4.5 Soil and substrate management

#### 4.5.1 Soil type mapping

**4.5.1.1** Soil map should be prepared for the farm to facilitate infrastructure planning, land preparation, inter-cropping, livestock integration and replanting programmes.

4.5.1.2 Topographic maps should be used to assist land clearing, preparation and planting.

#### 4.5.2 Cultivation

**4.5.2.1** Cultivation practices proven to improve or maintain soil structure and to avoid soil compaction should be followed.

**4.5.2.2** Suitable land clearing techniques and disposal of vegetation that minimises pollution shall be adopted.

#### 4.5.3 Soil erosion

Field cultivation techniques that minimise soil erosion shall be adopted.

#### 4.5.4 Soil fumigation

Not applicable.

#### 4.5.5 Substrates

Preference should be given to the use of natural substrates such as soil.

#### 4.6 Fertiliser management (organic and inorganic)

#### 4.6.1 Nutrient requirement

**4.6.1.1** Management practices should take into consideration the soil types to ensure nutrient balances and minimise nutrient loss.

**4.6.1.2** Fertiliser rates should be based on crop requirement and nutrient levels of soil and leaf.

#### 4.6.2 Fertiliser utilisation

**4.6.2.1** Usage of fertilisers should be in accordance with science based recommendations or best developed practice.

**4.6.2.2** The type, quantity, method, timing and frequency of fertiliser application should be carefully observed so as to maximise benefits and minimise losses.

#### 4.6.3 Records of application

All applications of soil and foliar fertilisers shall be recorded. Records shall include location, date of application, type and quantity of fertiliser applied, the method of application and name of operator.

#### 4.6.4 Application machinery

Fertiliser application machinery shall be kept in good working condition and calibrated to ensure the correct quantity is applied.

#### 4.6.5 Fertiliser source and storage

4.6.5.1 Fertiliser stock records shall be kept up-to-date and made available for inspection.

**4.6.5.2** Fertilisers should not be stored in the same room with pesticides. If this is not possible, the fertilisers and the pesticides shall be physically separated and labelled accordingly.

**4.6.5.3** Fertilisers shall be stored in a covered, clean, dry location where there is no risk of contamination of water sources.

**4.6.5.4** Fertilisers should not be stored with nursery stock.

4.6.5.5 Fertilisers shall not be stored with fresh produce.

4.6.5.6 All hazard and risk areas to humans shall be clearly indicated.

4.6.5.7 Records of source and chemical content of fertilisers used shall be made available.

#### 4.6.6 Organic fertiliser

**4.6.6.1** Organic fertiliser should be stored and handled in an appropriate manner to reduce the risk of contamination of the environment.

**4.6.6.2** The use of untreated and treated human sewage sludge and pig waste is prohibited.

**4.6.6.3** To avoid pollution by heavy metals or by nitrate leaching, analysis of nutrients, heavy metals and other potential pollutants in the organic fertiliser, should be completed before application. Proper account shall also be taken of the nutrient contribution of organic fertilisers.

**4.6.6.4** Organic fertilising in open field cultivation should be based on nutrient management plans.

4.6.6.5 Source of organic fertiliser used shall be recorded.

#### 4.7 Irrigation and fertigation

#### 4.7.1 Planning

Rubber growers are recommended to base their irrigation or fertigation requirement on sound historical and scientific data.

#### 4.7.2 Method

**4.7.2.1** The most efficient and commercially practical water delivery system should be used to ensure the best utilisation of nutrient and water resources as well as to protect water sources and avoidance of pollution.

**4.7.2.2** Consideration should be given to a water management plan to optimise water and nutrient usage and reduce wastage (e.g. systems for reuse, application at night, maintenance of equipment to reduce leakage, collection of rainwater, etc.).

**4.7.2.3** All rubber growers are encouraged to maintain records of irrigation and fertigation water usage.

#### 4.7.3 Quality of water

**4.7.3.1** Untreated sewage water is prohibited for use.

**4.7.3.2** Based on risk assessment, water sources should be analysed at least once a year for microbial, chemical and mineral pollutants. The analysis results should adhere to the Environment Quality Act 1974 and Environment Quality Regulations 1979 and adverse results acted upon.

#### 4.7.4 Supply of water

Water should be derived from sustainable sources. Rubber growers are encouraged to seek advice from relevant authorities e.g. local Drainage and Irrigation Department (DID) on water sourcing.

#### 4.8 Crop protection

#### 4.8.1 Basic elements of crop protection

**4.8.1.1** The use of pesticides to protect rubber shall be minimised.

**4.8.1.2** Wherever possible, rubber growers should adopt recognised Integrated Pest Management (IPM) techniques. Non-chemical control measures are preferred over chemical treatments.

**4.8.1.3** Rubber growers are encouraged to seek advice on IPM from competent authorities.

#### 4.8.2 Choice of chemicals

**4.8.2.1** The crop protection product utilised shall be appropriate for the control required.

**4.8.2.2** Rubber producers shall only use chemicals that are officially registered under the Pesticides Act 1974.

**4.8.2.3** Selective products that are specific to the target pest and which have minimal effect on populations of beneficial organisms, aquatic life, workers and consumers and are not detrimental to the ozone layer should be used.

**4.8.2.4** Instructions on the label shall be followed to ensure effective application and to avoid risks to operators, consumers and the environment.

**4.8.2.5** An anti-resistance strategy (e.g. use of correct dosage and alternative chemicals) should be adopted to avoid reliance on any one chemical.

**4.8.2.6** Rubber growers shall not use chemicals that are banned or disallowed in importing countries.

**4.8.2.7** Rubber growers should consult their customers to determine if any additional commercial restrictions exist.

#### 4.8.3 Advice on pesticide usage

Rubber growers are encouraged to seek advice on pesticide usage from competent authorities.

#### 4.8.4 Records of application

All records of pesticide applications shall include crop name, any intercrop and animal integration, location, date and reason for application, trade name of pesticide used, dosage, method of application and name of operator.

#### 4.8.5 Safety, training and instructions

**4.8.5.1** Operators shall be trained on safe and proper use of pesticides.

**4.8.5.2** Each area of application should be field marked with appropriate warning sign.

#### 4.8.6 Personal clothing and equipment

**4.8.6.1** Operators shall be equipped with suitable personal protective clothing and equipment appropriates to the danger posed to health and safety in accordance to the Occupational Safety and Health Act 1994 and Regulations.

**4.8.6.2** Personal protective clothing and equipment shall be cleaned after use and should be stored separately from pesticides.

#### 4.8.7 Pre-harvest interval

Not applicable.

#### 4.8.8 Spray equipment

**4.8.8.1** Spray equipment shall be suitable for use in rubber and shall be kept in good working condition. Calibration should be carried out as and when necessary to ensure accurate delivery of the required quantity of spray.

**4.8.8.2** When preparing spray mix the correct quantity, dosage of chemical for the crops to be treated and the proposed treatment type shall be calculated, accurately prepared and recorded.

#### 4.8.9 Disposal of surplus spray mix

Surplus spray mix and tank washings should be sprayed over an untreated part of the crop as long as the recommended dosage has not been exceeded or on designated fallow land. Records should be kept of such spraying.

#### 4.8.10 Pesticide storage

**4.8.10.1** Pesticides shall be stored in accordance with local regulations.

**4.8.10.2** Pesticides shall be stored in a sound, secured, water resistant, well ventilated and well-lit location away from other materials.

4.8.10.3 All shelves should be of non-absorbent material.

**4.8.10.4** The pesticide store shall be able to retain spillage (e.g. to prevent contamination of water courses).

4.8.10.5 There shall be adequate facilities for measuring and mixing pesticides.

**4.8.10.6** There shall be emergency facilities (e.g. plenty of clean water, bucket of sand) to deal with contamination and accidental spillage.

**4.8.10.7** Keys and access to the store shall be limited to workers with adequate training in the handling of pesticides.

**4.8.10.8** A procedure to handle accidents, a list of contact telephone numbers and the location of the nearest telephone shall be available within the immediate vicinity of the store. Similar information shall also be available next to the designated telephone.

**4.8.10.9** An inventory of the pesticide store shall be kept and be readily available for inspection.

**4.8.10.10** All pesticides shall be stored in their original package.

**4.8.10.11** Only pesticides registered for use on rubber or other crops on the farm shall be stored.

4.8.10.12 Powders shall be stored on shelves above liquids or separately.

**4.8.10.13** Warning signs of potential dangers shall be placed on access doors.

#### 4.8.11 Empty pesticide containers

**4.8.11.1** Empty pesticide containers shall not be reused and their disposal shall be in a manner that avoids exposure to humans and contamination of the environment.

**4.8.11.2** Official collection and disposal systems should be used if available.

**4.8.11.3** Empty containers shall be rinsed at least three times with water, and the washings returned to the spray tank before disposal.

**4.8.11.4** Unless participating in established recycling programmes or with expressed permission from the authorities, rinsed containers shall be pierced to prevent reuse.

**4.8.11.5** Empty containers shall be kept secure until disposal is possible.

**4.8.11.6** Disposal or destruction of containers shall be in accordance with the Pesticide Act 1974 and/or any other relevant local regulations.

#### 4.8.12 Obsolete pesticides

Obsolete pesticides shall only be disposed through an approved chemical waste contractor.

#### 4.9 Harvesting

#### 4.9.1 Hygiene

**4.9.1.1** Hygiene protocol should be put in place in order to prevent physical, microbiological and chemical contamination for workers.

**4.9.1.2** Workers shall undergo training in basic work place hygiene and safety. They shall be made aware of the requirement to notify management should they contract any transferable diseases.

**4.9.1.1** Workers should have access to clean toilet and washing facilities.

#### 4.9.2 Packaging on farm

Not applicable.

#### 4.9.3 Tapping and collection

**4.9.3.1** Chemical stimulants should be judiciously applied without contaminating the environment or causing adverse effects to the trees.

**4.9.3.2** Tapping method should avoid injury that invite diseases and necessitates chemical treatment.

**4.9.3.3** Clean cups or other suitable containers should be used to collect latex from the tree.

**4.9.3.4** The latex should be bulked into clean containers with suitable lid to avoid spillage during transportation from the field to collection centres. The containers are to be kept clean and not used for other purposes.

**4.9.3.5** Latex collection should be performed at the optimum period recommended after tapping.

#### 4.10 Post-harvest handling

#### 4.10.1 Post-harvest treatment

**4.10.1.1** Use of post-harvest treatments, e.g. latex preservatives, should be minimised. When used, it shall be in accordance with established recommendations.

**4.10.1.2** The latex should be transported to collection centres within the same day of harvest to minimise microbial contamination and latex deterioration.

**4.10.1.3** The cup lumps should be kept clean and not be contaminated with other foreign materials such as soil, plastics, plant materials, etc.

**4.10.1.4** The cup lumps removed from each cup should be transported to collection centres at the earliest possible.

#### 4.10.2 Post-harvest washing

Not applicable.

#### 4.10.3 Post collection

The collection centers or rubber dealers shall record the date of collection and purchases, the names of tapper, workers, sellers, dry rubber content (DRC) source, volume or weight of the produce.

#### 4.10.4 Transportation of rubber

Latex transporters should ensure quality of rubber is maintained by taking the necessary precautionary measures during transportation such as by covering with tarpaulin.

#### 4.10.5 Storage

The premises used to store rubber shall adhere to guidelines provided by local and other relevant authorities.

#### 4.11 Pesticide residue analysis of produce

Not applicable.

#### 4.12 Waste and pollution management, recycling and reuse

**4.12.1** All possible waste products and sources of pollution should be identified in all areas of the rubber production.

**4.12.2** Having identified wastes and pollutants, a plan should be developed and implemented, to avoid or reduce wastage and pollution. Whenever possible, avoid land-filling or burning, by recycling the waste. Crop debris may be composted and reused for soil conditioning.

#### 4.13 Worker health, safety and welfare

#### 4.13.1 Action plan

There should be an action plan to promote safe and good working conditions.

#### 4.13.2 Training

**4.13.2.1** Training shall be given to workers operating dangerous or sophisticated equipment.

**4.13.2.2** Records of training for each employee shall be kept.

**4.13.2.3** Accident and emergency procedures with clear instructions in the appropriate language of the workforce shall be displayed to all workers.

#### 4.13.3 Facilities and equipment

**4.13.3.1** First aid boxes shall be available at designated sites and all workers should be informed of these locations and the personnel in charge.

**4.13.3.2** Hazards should be clearly identified by appropriate warning signage.

#### 4.13.4 Pesticide handling

Workers undertaking pesticide applications on the farm should receive health checks in line with the Occupational Safety and Health Act 1994 and Regulations and Pesticides Act 1974.

#### 4.13.5 Hygiene

**4.13.5.1** All permanent rubber collection and storage sites shall have adequate pest control measures, particularly in areas for storage of pesticides, fertilisers, tapping utensils and stimulants.

**4.13.5.2** Workers should receive basic training in cleanliness requirements. The training program should outline the need for general safety.

**4.13.5.3** The premises should be kept clean at all times to avoid establishing a breeding ground for pests.

#### 4.13.6 Welfare

**4.13.6.1** All employment conditions shall comply with relevant regulations.

**4.13.6.2** If on-site living quarters are provided, they shall be habitable and have basic amenities and facilities in compliance with Workers' Minimum Standards Housing and Amenities Act 1990.

#### 4.14 Environmental issues

#### 4.14.1 Impact of farming on the environment

Rubber growers shall conform to Environmental Quality Act 1974 and Regulations which covers the concern for air, water, soil, biodiversity and other environmental issues.

#### 4.14.2 Wildlife and biodiversity conservation

**4.14.2.1** Rubber growers should always be conscious of the need to conserve biodiversity, wildlife, high conservation value areas and the enhancement of agricultural biodiversity.

**4.14.2.2** Where Environmental Impact Assessment (EIA) is required, consideration for the conservation of biodiversity and wildlife shall include the following areas:

- a) a baseline audit to understand existing animal and plant diversity on the farm;
- b) action to avoid damage and deterioration of habitats on the farm; and
- c) an action plan to enhance habitats and increase biodiversity, in particular agricultural biodiversity on the farm.

#### 4.14.3 Unproductive sites

Rubber growers are encouraged to convert unproductive sites (e.g. swamps, steep slopes, deep peat etc) into conservation areas for natural flora and fauna.

#### 4.15 Record of complaints

Records of complaints on rubber produced not in compliance with requirements in this standard and their remedial actions shall be made available on site.

#### 5. Legal requirements

All farm activities and produce shall in all other aspects comply with the requirements of the legislations currently in force in Malaysia.

#### Acknowledgements

#### Technical committee on Good Agricultural Practice for Crop Commodities members

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