



REPORT

**WORKSHOP ON MITIGATION OF SOUTH AMERICAN LEAF
BLIGHT (SALB) OF RUBBER IN THE ASIA-PACIFIC REGION**

17 - 21 OCTOBER 2016 KUALA LUMPUR, MALAYSIA

SUMMARY REPORT

South American leaf blight (SALB) is the most destructive disease of rubber. The disease is presently found in the American tropic with Mexico in the North and Brazil in the South. The disease has a high potential to establish in the Asia Pacific rubber growing countries due to the similar climate, increased in agricultural trade and advancement in intercontinental air transport. This workshop was held pursuant to the agreement in the 29th Session of the APPPC meeting in Bali, Indonesia to update the progress on the prevention of SALB incursion and discussed on the future action plan to strengthen the capacity especially in mitigating SALB pathways of non-rubber rubber agricultural products by utilizing international standard on pest free area of production.

The regional workshop was attended by 25 participants from 11 countries. In the welcoming remarks, Dr Piao Yongfan informed that APPPC have organized several workshops in relation to this disease and publish three (3) important documents to support capacity building of the NPPO in preventing the incursion of the disease. The Director General of Agriculture in officiating the workshop, acknowledged the importance of mitigating SALB since about 93% of the world natural rubber is produced in the region. He also encouraged the participants to develop a collaborative network between the rubber growing countries in protecting the rubber industry from SALB in the region. At the end of the opening session, Dr Piao Yongfan and Mr. Yusof Othman briefed the meeting on the FAO Regional Office for Asia and the Pacific initiative on One Health (OH) framework to support biosecurity, biosafety, food security and environmental health in the region, and SALB is one of the projects that in line with the OH initiative.

The workshop discussed on the status of SALB in the endemic countries and the control measures adopted to control the disease. However, the current control measures are ineffective or too costly to be implemented. Thus, the prevention of incursion is still the most cost-effective method for the region to protect the rubber industry from collapse. With the increase in the importation of non-rubber agriculture products from the SALB endemic countries to the region has posed a higher risk of SALB incursion. The purpose of this workshop was to discuss the approaches to reduce the risk of the importation through the establishment of pest free area (PFA) of production, pest free place of production and pest free production sites. Several International Standard on Phytosanitary Measures (ISPMs) related to the implementation and recognition of pest free area were presented, and breakout groups to discuss the establishment, maintenance, auditing and reporting of PFA were also conducted. Initial discussion on standard operating procedure on establishment and maintenance of PFA was discussed and this SOP could be used as reference in the trade negotiation with the SALB endemic countries.

The country presentation on the achievement and future action plan showed that substantial progress has been implemented, such as all the rubber growing countries have listed SALB as one of the quarantine diseases in their legislation/regulation. Most of the countries have conducted advocacy, awareness and training programme to the quarantine staff and public,

translated SALB training materials to local language, built diagnostic capacity to identify SALB on imported commodities and conducted specific survey for pests and diseases of rubber including detection of SALB. These activities are crucial for preventing the incursion. However, the level of achievement of certain countries showed certain gaps that need to be addressed such as conducting PRA on non-rubber agriculture products imported from SALB endemic countries, training of new and young officers in plant quarantine since the senior officers are retiring and diagnostic capacity to identify SALB. The meeting agreed to explore a diagnostic training that will be held in Guatemala in 2017 to replace Brazil. Malaysia as the Chairman of the SALB working group will engage with the Malaysian Rubber Board and Guatemala NPPO in planning the training workshop.

There were several recommendations during the future action plan discussion including training for plant quarantine and technical officers on identification and surveillance; encourage NPPO to publish materials in local language for public awareness; revise and update document related to *Microcyclus ulei*, develop and improve protocol for diagnostic particularly in identification using molecular technique; and formulate criteria in conducting risk assessment for importation of commodities from SALB endemic countries. The workshop also acknowledged the availability of facilities at the Indonesia Quarantine Training Centre located in Bekasi which can be utilized for future regional training.



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1.0 INTRODUCTION

1.1 Background

The South American leaf blight (SALB) is the most destructive disease of rubber that poses a major threat to the rubber growing countries. It still remains to be the greatest concern to the rubber producing countries in the Asia-Pacific region due to higher incursion potential of the disease and the devastating impacts to the rubber industry. Pursuance to the concern on the potential incursion, the Asia and Pacific Plant Protection Commission (APPPC) has organized several workshops in the preparation for the pest risk analysis (PRA) of SALB and capacity building in implementing the PRA in the past several years. In addition, APPPC also engaged a pathologist from the Rubber Research Institute of Malaysia and financed the travel to Brazil and New Zealand for joint research in filling the information gaps for complete assessment of the risk in the PRA document. The pest risk analysis on SALB was adopted by the 25th session of the Asia and Pacific Plant Protection Commission in Beijing, China in 2007, which was the basic reference for the development of a regional standard for phytosanitary measures (RSPM) on SALB.

The 29th Session of the Asia Pacific Plant Protection Commission (APPPC) held in Bali, Indonesia, in September 2015, had agreed to conduct a workshop to discuss future plan on continuous protection this region from SALB and update progress made by each rubber growing countries including rubber pests and diseases surveillance activities. This workshop also acted as a platform to discuss the work plan on how to move forward since future diagnostic training in

SALB endemic area may not be possible and will also focus on developing standard operating procedure on SALB pest free area.

The trade between Asia Pacific rubber growing countries and SALB endemic countries which are growing rapidly, creates an urgent need to update the list of commodities that are being imported as these products could be potential pathways when contaminated SALB spores. Thus, the need to develop new quarantine measures against the disease is urgent. Participants of this workshop would have an overview on what is currently being traded, discussed the risk and shared their experiences on managing SALB risk associated with these commodities.

1.2 Objectives and Expected Outputs

The overall objective of the workshop was to discuss the future plans on the protection the APPPC region from SALB invasion, with the following specific objectives:

- i) to report on the status of rubber pest and disease surveillance in the Asia and Pacific rubber growing countries;
- ii) to update progress on capacity building and public awareness programme on SALB in the Asia and Pacific rubber growing countries; and
- iii) to gain deep understanding on requirements of establishing pest free area and recognition of pest free area.

The workshop was also expected:

- i) to document pest surveillance activities on rubber in Asia and Pacific region;
- ii) to develop summary of standard operating procedure for SALB pest free area; and
- iii) to develop a future work plan on protection of SALB.

1.3 Participation

A total of 25 participants and observers from eleven (11) countries attended this workshop. Participants were from Cambodia, China, Indonesia, Laos, Malaysia, Myanmar, Philippines,

Singapore, Sri Lanka, Thailand and Viet Nam, consisted of officers involved in plant protection or quarantine activities of the NPPOs and rubber research institution. Two experts Dr. Ismail Hashim and Mr. Yusof Othman from Malaysia were invited as SALB expert consultant and workshop facilitator, respectively. The list of participants, observers, experts and secretariat is as **Appendix 1**.

1.4 Workshop programme

The workshop programme consisted of lectures on ISPMs related to surveillance; determination of pest status; pest reporting; and establishment of pest free area (PFA), pest free place of production (PFPP) and pest free production sites (PFPS). Participants also presented their reports on the current activities pertaining to protection against the introduction of SALB in their countries; their plan of future programmes and constraints encountered. Group discussions were conducted to discuss pest status and surveillance of SALB; establishment of PFA and PFPP/PFPS; recognition of PFA; and drafting of standard operating procedures on establishment of SALB PFA. A full programme is shown in **Appendix 2**.

2.0 SESSION 1: OPENING CEREMONY

2.1 Welcoming remarks

Dr Piao Yongfan, Executive Secretary of Asia Pacific Plant Protection Commission (APPPC) welcomed the Director-General and Director of Plant Biosecurity Division of the Department of Agriculture, participants and distinguished guests to the opening session of the workshop on mitigation of South American leaf blight of rubber in the Asia and Pacific region. He acknowledged the support given by the Ministry of Agriculture and Agro-Based Industry in the management of this disease that only occurred in the South and Central American rubber growing countries, The support will not only benefit Malaysia but the whole region from the detrimental effects of the disease to the rubber industry. He informed that this workshop was co-organized by Food and Agriculture Organization (FAO) and Department of Agriculture, Malaysia, through the APPPC to ensure proper policy, regulation and mitigations are in place for

the rubber growing countries in the region to prevent and safeguard the incursion of the disease in the region. He emphasized that the urgency, to be prepared against any possible incursion of SALB, is very crucial since agriculture trading between our region and the South and Central American countries is growing tremendously. He encouraged all natural rubber growing countries to review their import requirements of all agriculture products from the SALB endemic countries based on the related standards and guidelines. To support the ground implementation, APPPC has also prepared several important documents such as the PRA and RSPM. With these documents, he hoped that the region is now well prepared to prevent the incursion of the disease and could consider to ratify the proposed deletion of Article IV and Appendix B of the APPPC Agreement which is against the spirit of SPS agreement. He also reiterated that the current workshop, the focus will be more on the implementation of ISPMs that are related to declaration of pest free areas and maintaining the pest free status.

2.2 Opening address

Yang Berbahagia Dato' Ahmad Zakaria Mohamad Sidek, the Director General of Agriculture, Malaysia on behalf of the Government of Malaysia extended his warmest welcome to distinguished FAO representatives, consultant, honorary guests and participants to the workshop and thanked APPPC for selecting Malaysia to host the Workshop. He informed that Malaysia has hosted several workshops regarding SALB since 2003 and showed strong commitment to resolve the issue of SALB in international trade within the region and globally. He also noted on the encouraging participation from all 11 countries in the region namely People's Republic of China, Cambodia, Indonesia, Laos PDR, Malaysia, Myanmar, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam. He later emphasized on the importance of rubber as an industrial crop in the Asia-Pacific region that contributed up to 93% of the world natural rubber production. Thus, it is very critical and important to put in place the appropriate measures to protect this region from the incursion of SALB. Yang Berbahagia Dato' also expressed his high expectation that, through this workshop, a strong network can be built among participants for exchanging information on SALB. He also encouraged the participants to fully utilize all the information on SALB and get in touch with the available technical experts on SALB related matters for the benefits of future. Yang Berbahagia Dato' took the opportunity to

congratulate the APPPC, the FAO office of the Asia and Pacific Region and DOA Malaysia for co-organizing this important workshop. Lastly he wished all participants to have a successful workshop and a pleasant stay in Kuala Lumpur.

2.3 One Health: Framework to support biosecurity, biosafety, food security and environmental health in the region

FAO representative Dr. Piao Yongfan and FAO consultant Mr. Yusof Othman took this opportunity to brief participants on the One Health framework to support biosecurity, biosafety, food security and environmental health in the region. Mr. Yusof informed that One Health concept is an integrative effort of multiple disciplines implemented locally, nationally and globally to attain optimal health and well-being for people, animals and the environment.

The scopes of activities under One Health programmes are:

- i) One Health status assessment;
- ii) Developing/strengthening country and regional policies to support One Health operationalization including advocacy;
- iii) Institutionalizing and developing One Health governance;
- iv) Developing capacities for One Health; and
- v) Operationalizing One Health approach on selected country and regional issue/problems.

In conclusion, One Health's goal is for public health and well-being by addressing food safety, direct health threats and food and nutritional security through establishing bio-safe, efficient and sustainable food systems and promotes trade.

3.0 SESSION 2: INTRODUCTION

3.1 Purpose and scope of the workshop

Yang Berbahagia Datin Jatih Aliah Timin, presented the purpose and scope of the workshop which consisted of the workshop's objectives and the expected outputs. Datin Jatih also presented the history of previous works on SALB. There were five (5) workshops conducted since 2003 until 2015. Related publications were published through the workshops namely "Protection against South American leaf blight of rubber in Asia and the Pacific Region" Volume I and Volume II. She also gave a short briefing on the SALB Workshop programme which comprised lectures, presentations of country reports and group breakout discussions. Lectures on ISPM 4, ISPM 6, ISPM 8, ISPM 10, ISPM 17 and ISPM 29 related to the workshop topics were given. A draft on outline of standard operating procedure on establishment of SALB pest free area in SALB endemic countries would be discussed at the end of the workshop.

4.0 SESSION 3: SALB ISSUES AND COUNTRY PRESENTATIONS

4.1 Update status and distribution of SALB in American tropics and new development on SALB issues

Dr. Ismail Hashim delivered his presentation on the update status and distribution of SALB in American tropics, management strategies and new development on SALB issues. He refreshed the participants on the previous workshops on the distribution of native rubber, various *Hevea* species, list of SALB hosts and the history of the early spread and occurrence of SALB in south and central America. He informed the workshop that currently the distribution of SALB is still confined to the American tropics and Caribbean islands from Mexico to Brazil and listed the countries where SALB is present. To date, there is no report on recent incursion of SALB in a new country. However there are changes in hectareage of the rubber growing areas in SALB endemic countries such as declining in rubber plantations in Brazil, increasing in rubber growing in Colombia, Costa Rica, Guatemala etc. and new rubber areas in Brazil, Guatemala, Colombia, Ecuador and Peru that concentrate within SALB escaped areas. Lastly, the workshop was informed on the availability of suitable rubber clones (resistant clones) planted in Asia and changes in weather conditions that will affect the distribution of rubber planted areas, SALB endemic areas and PFAs.

4.2 Country presentations

Each country presented their current status / achievements, national planning and constraints encountered in the implementation of activities related to mitigation of SALB of rubber.

Activities presented comprise of:

- i) Legislation and regulation on SALB;
- ii) Advocacy / awareness / workshop / training;
- iii) Training material (local language);
- iv) Diagnostic capacity;
- v) Import risk assessment; and
- vi) Disease surveillance.

See Table 1 Summary of updated country status.

5.0 SESSION 4: PEST STATUS OF SALB AND SURVEILLANCE

5.1 Lecture 1: Pest surveillance, status and reporting

Mr. Yusof Othman presented a lecture on pest surveillance, status and reporting and overview of ISPM 6, ISPM 8 and ISPM 17. The lecture on pest surveillance emphasized the importance of pest surveillance information and ISPMs related to pest surveillance. His lecture covered topics on general surveillance and specific surveys, determination and categorization of pest status and basic requirement in pest reporting.

5.2 Group breakout session 1: Discussion on pest status of SALB and surveillance in Asia and Pacific region and SALB endemic countries

Participants were divided into two (2) groups and facilitated by Dr. Ismail Hashim and Mr. Yusof Othman.

- Group 1: Pest status of SALB (Asia and Pacific region) and SALB endemic countries (Categorization of countries based on information) (Facilitator : Dr. Ismail Hashim)
- Group 2: Surveillance of SALB (Facilitator: Mr. Yusof Othman)

The group presentations are shown in **Appendix 3 and Appendix 4.**

6.0 SESSION 5: REQUIREMENTS FOR PEST FREE AREA/PEST FREE PLACES OF PRODUCTION/ PEST FREE PRODUCTION SITES

6.1 Establishment of pest free areas and pest free places of productions or pest free production sites

The presentation highlighted the requirement for establishment of pest free area (PFA) and pest free place of production (PFPP)/pest free production sites (PFPS) according to ISPM 4 and ISPM 10, respectively. PFA involves larger area which includes several places of production and may extend to whole country or parts of several countries, maintained over many years without interruption and wholly managed by NPPO. On the other hand, PFPP or PFPS may be situated in an area where the pest concerned is prevalent and is isolated, may be maintained for only one or a few growing season, PFPP/PFPS is managed individually by the producer, under the supervision and responsibility of the NPPO. In addition, PFPP are any premises or collection of fields operated as a single production unit, whereas PFPS is only portion of a place of production can be managed as a separate unit within a place of production.

In general, establishment and maintenance of PFA and PFPP or PFPS require:

- i. systems to establish freedom;
- ii. phytosanitary measures to maintain freedom;
- iii. checks to verify freedom has been maintained;
- iv. document and review; and
- v. Establishment and maintenance of buffer zone may be required for PFPP or PFPS.

6.2 Group breakout session 2: Discussion on requirement for the establishment of pest free area and pest free place of production

Participants were divided into two (2) groups and facilitated by Mr. Yusof Othman. The first group discussed on establishment of PFA for SALB and the second group discussed on establishment of PFPP for SALB.

Group 1 elaborated on requirements for establishment of pest free area of SALB. The initial step that should be taken in the system to establish pest free area freedom of SALB includes general surveillance and specific surveillance. For general surveillance, data compilation of SALB could be compiled by various sources, namely CABI, IPPC website, websites of NPPOs of SALB endemic region, among others. Specific survey should be conducted once annually for high-risk area, meanwhile for nationwide survey, it should be conducted once in every 2 years.

The phytosanitary measures to maintain freedom of SALB in Asian rubber growing countries comprises of strengthening the import requirements of products from SALB endemic countries, restriction of the movement of certain products within an endemic country's buffer zones and routine monitoring. The full presentation can be found in **Appendix 5**.

Group 2 represented by Dr. Adam Malik recommended a number of actions to establish, maintain and verify pest freedom at a place of production. Actions to fulfil requirement of documentation and review; pest reporting; and establishment and maintenance of buffer zone were also suggested. The Full presentation can be found in **Appendix 6**.

7.0 SESSION 6: RECOGNITION OF SALB PEST FREE AREA (PFA)

7.1 ISPM 29: Recognition of pest free areas and areas of low pest prevalence

Ms. Lailatul Jumaiyah presented on ISPM 29 which provides guidance and describes a procedure for the bilateral recognition of pest free areas (PFA) and areas of low pest prevalence (ALPP). This ISPM is important even it is not legally binding but members of World Trade Organization (WTO) have to fulfil their obligations under Article 6 of Agreement on application of sanitary and phytosanitary. Recognition of PFA and ALPP is a technical and administrative process to achieve acceptance of the phytosanitary status of a delimited area. There are a few principles that are

important in this ISPM such as recognition of pest free areas and areas of low pest prevalence, sovereignty and cooperation, non-discrimination, avoidance of undue delay and transparency. The presentation discussed detail on the responsibilities of exporting and importing countries in recognition of PFA and ALPP and process of getting recognition of PFA and ALPP.

7.2 Discussion on recognition of PFA of SALB in SALB endemic countries

Participants were divided into two (2) groups and facilitated by Mr. Yusof Othman and Dr Ismail Hashim. The first group discussed on the information that need to be provided to importing country and information required for recognition of pest free area (Importing country's perspective).

Group 1 described the information that is important in obtaining pest free area status. Information on pest status on *Hevea* sp. and non *Hevea* sp., geographical distribution and severity of SALB in the exporting country, systems and record of SALB detection for the last 3 years, production area, climate condition, management strategies to maintain the status of pest free area, map of commodities production area, quarantine system and evidence of recognition from other countries are important in getting recognition of pest free area. The full presentation appears in **Appendix 7**.

Group 2 represented by Ms. Normawati Lanisa recommended that the exporting country should provide information on production area including map with GPS coordinate, size of the area, degree of isolation, distribution of quarantine control and treatment facilities, detection survey report for the last 3 years which certified by NPPO, supporting information on recognition of PFA by other countries, emergency plan for pest incursion, information on climate characteristics of PFA area, information on phytosanitary measures for imports into PFA and information on systems for maintenance of PFA. Details of group recommendation are shown in **Appendix 8**.

8.0 SESSION 7: STANDARD OPERATING PROCEDURE ON ESTABLISHMENT OF SALB PEST FREE AREA IN SALB ENDEMIC COUNTRIES - DRAFTING AND PRESENTATION

8.1 Group presentation of standard operating procedure

The groups presented the outcomes of their discussion on standard operating procedures (SOP) on establishment of SALB pest free area in SALB endemic countries. These SOP consists of several pertinent issues in the development of pest free areas such as survey methodology, responsibility of stakeholders, emergency action plan, information management, funding and reporting.

Group 1 represented by Dr. Lai Lee San presented standard operating procedure for establishment of PFA. The group emphasized that the management responsibility for establishment and maintenance of PFA relies on the NPPO of the exporting country and the NPPO should ensure the availability of well-trained personnel in this subject matter. NPPO of the exporting country should also verify the information on general surveillance and should provide the outcome of the surveillance to the importing country when necessary. The pest free area (PFA) management should establish contact and cooperation with NPPO in developing specific survey plans including survey methodology and decision on the frequency of the survey. The exporting country should also establish the emergency action plan or contingency plan in the event of SALB detected in the PFA. The PFA should ensure sufficient funding is available for operation and maintenance of PFA, training, infrastructure (laboratory facility), procurement of new equipment (GPS and GIS), and travelling expenses for surveillance team, transportation, consultant, meetings, discussions, and negotiation. The management and NPPO should constantly update and maintain the status of PFA and create public awareness. The full presentation is shown in **Appendix 9**.

Group 2 represented by Dr. T.H.P. Sarojini Fernando described the responsibility of grower such as establish and maintain of PFA, maintain the required phytosanitary measures on the farm, develop and maintain of biosecurity systems at farm level and their documentation, registration of farms with NPPO and maintain record of the control measure undertaken during the cropping season. She also described the responsibility of packing facilities such as maintaining record on all activities carried out at packing house and accepting produce only from registered farm. Among the responsibility of NPPO is to conduct periodical audit at the registered farm,

communicate non-compliance to the concerned stakeholders, advice farmers on best practices and standardize the quarantine treatment protocols, whenever required. NPPO should ensure infrastructures such as national diagnostic laboratory and standardized biosecurity compliance packing facilities are in place for produce from PFA. The full presentation appears in **Appendix 10**.

9.0 FIELD VISIT

A field visit was made to Malaysian Rubber Board's Rubber Technology Centre, RRIM research station, Sungai Buloh, Selangor. At the station, participants:

- i) Visited MRB 1981 rubber germplasm collection which is a national heritage. Seeds for this collection were collected in Brazil;
- ii) Were briefed on the current research on rubber by MRB i.e. biotechnology and proteomics research; anti-cancer research on fresh latex; and molecular pathology - study on host -pathogen interaction;
- iii) Were briefed on major rubber disease in Malaysia. Pest and disease of rubber are surveyed biannually;
- iv) Visited bud wood nursery of 12 clones that are tolerant to SALB; and
- v) Visited International Rubber Products Exhibition Centre Malaysia where 3000 products made from rubber are exhibited.

10.0 SESSION 8: DISCUSSION, RECOMMENDATIONS AND CONCLUSION

10.1 Discussion on achievement on SALB programme in rubber producing country

Current status and achievement of national plan and future action plan of participating countries were discussed. In general, most of the countries have implemented measures i.e. legislation, capacity building, import requirement and diagnostic capacity, to prevent the introduction of SALB in this region.

10.2 Discussion on future action plans

The result of the discussion on achievement and future action plans identified by the participants are given in the table and concluded as follows:

- i) Training for plant quarantine and technical officers on identification and surveillance of SALB;
- ii) Publish materials in local language as a tool for public awareness or stakeholders;
- iii) SOP development for importation of non-rubber commodities from SALB endemic countries;
- iv) Revise and update document related to *Microcyclus ulei*;
- v) Develop, update and implement surveillance programme for SALB;
- vi) Develop and improve protocol for diagnostic particularly in identification using molecular technique; and
- vii) Formulate criteria and conduct risk assessment for importation of commodities from SALB endemic countries.

10.3 General recommendations

- i) The workshop was informed on the existence and the availability of facilities in the Indonesia Quarantine Training Centre which is located in Bekasi, Indonesia, that can be utilized for future regional training.
- ii) It is very crucial for each country in this region to train new and young officers as most of SALB resource persons are retired from civil service. This is important to improve the capacity building and that succession planning is in place.
- iii) To support in-country capacity building programme on SALB, FAO is willing to cover travel and accommodation expenses of experts or consultants while the

other domestic training costs should be borne by the respective country. A proposal should be submitted to FAO for consideration and approval.

- iv) The workshop proposed to conduct a hands-on SALB training at Guatemala as the previous hands-on SALB training in Brazil did not materialize. A detailed proposal needs to be prepared by the SALB working group lead by Malaysia.

Table 1 Summary of updated country status

Country	SALB Legislation/ Regulations	Advocacy/ Awareness/ Workshop/ Training	Training Materials (local language)	Diagnostic Capacity	Import Risk Assessment	Surveillance	Commodities Import from SALB endemic countries	Future Plan
Cambodia	YES SALB - Listed in country Pest List	YES Knowledge on SALB only disseminate to quarantine officer. Not for general public yet.	NO Plan to have it in future	Limited knowledge - need training on identification of SALB	-	-	YES Tobacco seed	Training - plant quarantine officer at border check point; grower; importer; farmer. Collaboration with Rubber Research Institute - share info, training. Publish - brochure, poster. Diagnostic - training. Surveillance
China	YES SALB - Listed in country Pest List There is a National Standard for Detection and Monitoring of SALB	YES 2014 - training on SALB for state farmer Future plan - another training will be organized	YES Use national standard on SALB for training Publish books - detailed description of SALB ISPM - translated to local language	YES Morphological and molecular protocol available in Chinese language Well-equipped laboratories	YES Rubber planting material and non-rubber products	-	YES coffee, corn, cocoa, tomato, soy bean, cassava	To include SALB in inspection and monitoring network Development of database International workshop on SALB Mobile app - SALB Publish book on SALB
Indonesia	YES Regulate importation of commodities from SALB endemic countries. SALB - Quarantine Pest list.	YES Officer, farmer, stakeholder, public awareness Farmer's Field School approach	YES Modul and practical book of detection and identification Manual on diseases of rubber-PCR protocol to identify SALB	YES Morphological and molecular develop primer to detect <i>M. ulei</i>	YES PRA for commodities from SALB endemic countries Interception at border	YES Specific surveillance of SALB by IAQA General surveillance for pest and disease of rubber	YES Soy bean & corn - animal feed dried tobacco leafcut flowersoil palm seed - commercial PRA	- Establish SOP - import of commodities from SALB endemic countries- Strengthen molecular technique for detection and identification- Training & field school - Revise/update document on <i>Microcyclus ulei</i> - Look forward to participate in the joint training plan to be conducted

							conducted	in SALB endemic country (Brazil/Guatemala).
Lao, PDR	YES SALB - listed in Quarantine Pest list	FUTURE PLAN No training to farmer yet Future plan - to organise a training	Materials currently not in local language	Limited knowledge - need training on identification of SALB	-	YES	-	- Surveillance - Training and awareness program - technical officers and farmers - Training - diagnostic
Malaysia	YES Regulate importation of rubber and non-rubber	YES Public awareness; blog- Include all Quarantine Pest including SALB in yearly courses conducted at training Centre inform new staff Publication - newspaper; Present in conference	YES Guideline of detection and identification of <i>Microcyclus ulei</i>	YES Morphological (microscopic)	YES Currently conducting PRA for application from Mexico, Peru, Brazil for non-host product	YES Conducted by MRB	YES grain (soy bean, maize, coffee, quinoa, cocoa); timber; raw cotton - for commercial & processing PRA conducted	- Develop module for training for quarantine officer and inspector- Updating pamphlet- Develop molecular diagnostic protocol- Train new pathologist- Training in identification- Strengthen quarantine
Myanmar	YES SALB - not listed in pest list General law for import and export - use to control SALB	YES technical staff, farmers Farmers group discussion Farmer's field days Pest management training - include SALB	YES Agri-business journal Poster Pamphlets	YES Morphological	YES PEQ facilities - one year Certified free from SALB by plant pathologist Restrict budwood length - less than 1m IP and PC	No systematic surveillance yet		- Develop surveillance plan - Program for public awareness and capacity building - Develop diagnostic procedure

Philippines	YES- regulate importation of rubber plants and parts from Central America- prohibits importation of rubber plants and parts from SALB endemic countries	YESLecture on SALB (awareness and management). Training has been conducted for plant protection officer. Training for plant quarantine officer - next year.	YESBooklet; leaflet	YES-Well-equipped diagnostic laboratory capable to conduct cultural, morphological, serological and molecular tests- Trained pathologist	YES PRAs done	No data on pest surveillance of SALB	YES Under PRA- Apple; palm seed; melon- Avocado, Citrus, grape <i>Arundo donax</i> bamboo, cassava germplasm Imported: seeds; cut flowers, avocado, ornamental, groundnut, liliun, oil palm seed, rice seed, roses, sesame, soy bean meal, tobacco leaf and seed, white potato	<ul style="list-style-type: none"> - Conduct more training to quarantine officer, farmers, growers - Surveillance plan - collaboration with rubber research institute - Conduct risk assessment for market access related to commodities imported from SALB endemic countries.
Singapore	YESSALB - listed as Quarantine PestRegulate importation of rubber	YESRegular training on plant biosecurity including Quarantine PestLook forward for invitation of training conducted by regional country or agency	YESPLANTI, CABI, APPPC	YESMorphological - PLANTI & CABI ID keysWell-established molecular laboratory ready for molecular testing for SALB - require protocol and sample (DNA)	YES-Import regulations- Active Post Entry Inspection- SALB Spore Traps at airport	YES	YES Fresh fruits, vegetables, cut flowers; ornamentals; coffee, cocoa, sesame seed,	<ul style="list-style-type: none"> - Develop diagnostic protocol - adopt molecular techniques in detection of SALB- Training - diagnostic morphological- Surveillance -

								scale down, reduce
Sri Lanka	YES -New Act - documented & subjected to approval -Prohibit importation rubber materials and parts from SALB endemic countries	YES Awareness program Training program under discussion at national level - including SALB	YES Leaflet; poster; banner; handout; video Translating scientific material to local language	YES Cultural and morphological test	-	NO	YES corn meal, tampico fiber, tobacco, pine wood, veg seeds	-In short term: organize discussion with NPPO - transfer knowledge gain from this workshop - Conduct training & follow-up seminar - Public awareness - importer, exporter '- In long term - translate SALB document to local language; -Formulate condition of entry for commodities from SALB endemic countries
Thailand	YES SALB - listed as Quarantine Pest Importation of <i>Hevea</i> spp. - subject to PRA	YES new officer; neighbouring countries officials (Lao, Myanmar); student	YES Quarantine measures; brochures	YES Protocol available for SALB diagnosis - morphological and molecular techniques (under development)	YES	YES Not directly for SALB	YES Tobacco seeds from Brazil PRA conducted	- Develop molecular technique for diagnostic- Interception- Surveillance- Develop action plan

Vietnam	<p>YES SALB - listed as Quarantine Pest -Publish circular on procedure for importation of rubber from SALB endemic countries -National Standard on Identification of SALB</p>	<p>YES - New officer; quarantine officer - Public awareness - publish pamphlet on SALB; NPPO website - Plant quarantine diagnostic Centre - reporting of incident - Training: (1) for quarantine inspector and (2) for plant protection officer, rubber grower, researcher</p>	<p>YES Handbook and DVD of quarantine pest Manual on pest and disease of rubber</p>	<p>YES Morphological and molecular No reference specimen</p>	<p>YES PRA conducted</p>	<p>YES On several crops including rubber</p>	<p>YES grapes, corn seed, soy, dried tobacco leaf, timber</p>	<p>- Training for stakeholders - Public awareness - Source fund to join the proposed joint training t SALB endemic country (Brazil/Guatemala)</p>
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10.4 Conclusion

The outcome and conclusion of the workshop was delivered by Dr. Piao Yonfan. He highlighted that during the country presentations, the participants had provided a comprehensive information on the current status on the prevention of SALB through pest surveillance activities conducted in their countries. Some of the action plans provided were general, however there are still rooms for improvement to be done.

He hoped that the lectures given and exercises conducted during the workshop would benefit the participants, particularly new officers who have not yet gone through previous extensive training. In addition, these experiences and information could be a tool for the officers during trade negotiation. Although the time allocated for group exercise was insufficient to complete a detailed SOP for SALB pest free area, each country is encouraged to continue improving documents after going back to their own country.

He also noted the workshop proposal regarding the hands-on SALB training in Guatemala to substitute the previously planned hands-on training in Brazil in 2013 that did not materialise. He mentioned some of the challenges faced by the APPPC member countries such as the retirement of experienced officers and lack of knowledge and skill among new officers. Thus, he emphasized the need to have capacity building and training of trainers' programmes to improve knowledge and skill for new officers. As some member countries have better capacity and capability in conducting SALB diagnostic using molecular techniques, Dr. Piao suggested it to be shared with other member countries. The use of molecular techniques in SALB detection and diagnostics should be encouraged as it has many advantages such as easier and safe movement of positive DNA materials; accurate and fast detection or identification method and relatively low cost efficient.

Lastly, Dr. Piao suggested that all member countries should fully utilize the SALB blog and APPPC website to obtain more information on SALB and should continuously update their country information on SALB management in the APPPC website.

10.5 Closing remarks

The workshop was officially closed by Mr. Halimi Mahmud, Acting Deputy Director General Department of Agriculture Malaysia. In his closing speech, Mr. Halimi Mahmud congratulated all participants for their active participation in this workshop. He mentioned that this workshop was held to update information and progress of SALB related programmes, as well as to report on the status of rubber pest and disease surveillance in the Asia and Pacific rubber growing countries and to develop future action plans at a regional level. The workshop also discussed and deliberated on several issues pertaining to SALB such as pest status, surveillance of SALB and requirements of pest free area and pest free production sites. He hoped that all APPPC member countries will continue updating their in-country capacity building on policy, awareness level and diagnostic of SALB. He urged that all information derived from the brainstorming session especially on the elements of pest surveillance activities and work plan to be documented comprehensively in the standard operating procedure for SALB pest free area. He finally officiated the closing of the workshop and wish all participant a safe journey home.

LIST OF PARTICIPANTS

Cambodia

1. Dr. Ny Vuthy

Deputy Director
Department Plant Protection
Sanitary and Phytosanitary of General
Directorate of Agriculture (GDA)
Cambodia
Tel: (855) 12 222 261
Email: n.vuthy@yahoo.com

People's Republic of China

2. Dr. Huang Guixiu

Liaison Officer of Plant Protection Specialist
Group
Chinese Academy of Tropical Agriculture
Sciences Environment and Plant Protection
Institute (CATAS)
No. 4 Xueyuan Street, Longhua District
Haikou, Hainan 571101, China
Tel: 8610-13907658232
Fax: 0898-66969211
Email: hgxiu@vip.163.com

Indonesia

3. Dr. Ummu Salamah Rustiani

Senior Plant Quarantine Officer
Center of plant Quarantine and Biosecurity
Indonesian Agricultural Quarantine Agency
Jalan Harsono RM. No.3, Ragunan
Pasar Minggu, Building E, Floor 5
Jakarta 12550, Indonesia
Tel/Fax: 62(021) 7816482
Email: ummurustiani@gmail.com

4. Ms. Ebi Rulianti

Head of Sub Division of Data and
Organization

Directorate of Estate Crop Protection
Jalan Harsono RM. No. 3, Ragunan
Pasar Minggu, Building E, Floor 8
Jakarta 12550, Indonesia
Tel/Fax: 62(021) 7815684
Email: ebi_salsa@yahoo.com

Lao, PDR

5. Mr. Souliya Sayapattha

Technical of Plant Protection Centre
Department of Agriculture
Ministry of Agriculture and Forestry
Lan Xang Avenue, Patuxay Square
P.O. Box 811, Vientiane, Lao, PDR
Tel: +85621 812164, +85620 96188105
Email: sayapattha@gmail.com

Malaysia

6. Ms. Normawati Lanisa

Assistant Director
Post-Entry Quarantine Unit
Plant Biosecurity Division
Department of Agriculture Malaysia
Kompleks Pertanian Serdang
Selangor, Malaysia
Tel : 03-8948 4675
Fax: 03-8948 9243
Email: norma_2608@yahoo.com

Myanmar

7. Ms. Me Me Khaing

Deputy Staff Officer
Department of Agriculture
Ministry of Agriculture, Livestock and
Irrigation, Myanmar
Tel: 09-979585301
Email: memekhaing5@gmail.com

Philippines

8.Ms. Amor C. Dimayacyac

Supervising Agriculturist
National Plant Quarantine Services Division
Post Entry Quarantine Station
Los Banos, Laguna, Philippine
Tel: (6349) 5367678
Email: acdumayacyac@yahoo.com

Singapore

9.Ms. Jenny Yap Mei Lai

Director cum Programme Chief (Plant Health)
Plant Health Laboratory Department
Laboratories Group
Agri-Food and Veterinary Authority (AVA)
Animal & Plant Health Centre
No. 6 Perahu Road, 718827 Singapore
Tel: (65) 63165142
Email: yap_mei_lai@ava.gov.sg

10.Ms. Naomi Pena Gesmundo

Executive Manager
Inspection Department
Quarantine and Inspection Group
Agri-Food and Veterinary Authority (AVA)
Sembawang Research Station
Lorong Chencharu, Plant Health Centre
769193 Singapore
Tel: (65) 67530657
Email: Noemi_gesmundo@ava.gov.sg

Sri Lanka

11.Dr. (Mrs.) T.H.P.S. Fernando

Senior Plant Pathologist
Plant Pathology & Microbiology
Department
Rubber Research Institute of Sri Lanka
Dartonfield, Agalawatte, Sri Lanka
Tel: +94771980378, +94342247426
Email: thpsfernando@yahoo.com

Thailand

12.Ms. Chonticha Rakkrai

Senior Agriculture Scientist
Plant Protection Research and Development
Office
Department of Agriculture (DOA)
50 Phaholyothin Road, Ladyao, Chatuchak
Bangkok 10900, Thailand
Tel: +662 940 6670 ext. 107
Fax: +662 579 4129
Email: rakkrai@yahoo.com

Viet Nam

13.Mr. Duong Minh Tu

Director
Plant Quarantine Diagnosis Centre
Plant Protection Department
Ministry of Agriculture and Rural
Development
149 Ho Da Di Street, Dong Da District
Hanoi, Viet Nam
Email: tudm.bvtv@mard.gov.vn

OBSERVERS

14.Datin Jatih Aliah Timin

Deputy Director
Plant Biosecurity Division
Department of Agriculture Malaysia
Jalan Sultan Salahuddin
50632 Kuala Lumpur, Malaysia
Tel: 03-2020 1400
Fax: 03-2697 7205
Email: jatilahiah@doa.gov.my
djatilahiah@gmail.com

15.Dr. Mohd Nasaruddin Mohd Aris

Director
Production Development Division
Malaysian Rubber Board (MRB)
Email: nasaruddin@lgm.gov.my

16.Mrs. Julia Lamdin

Deputy Director (Research)
Department of Agriculture Sabah
Level 5, Wisma Pertanian Sabah

Jalan Tasik (off Jalan Maktab Gaya)
Luyang, Beg Berkunci No. 2050
88632 Kota Kinabalu, Sabah, Malaysia
Tel: 088-283283/283282
Fax: 088-239046
Email: Julia.lamdin@sabah.gov.my

17. Dr. Adam Malik Ahmad Zambri
Research Officer
Production Development Division
Malaysian Rubber Board (MRB)
Email: adam@lgm.gov.my

18. Ms. Lai Lee San
Research Officer
Department of Agriculture Sarawak
7. 12-17th Floor, Menara Pelita
Jalan Tun Abdul Rahman Yakub
Petra Jaya, 93050 Kuching
Sarawak, Malaysia
Tel: 082-441000
Fax: 082-447821

19. Ms. Sudarti Asri
Principal Assistant Director
Plant Biosecurity Division
Department of Agriculture Malaysia
Email: asrisue37@gmail.com

20. Ms. Rozilawati Azman
Assistant Director
Plant Biosecurity Division
Department of Agriculture Malaysia
Email: rozilawati.azman@gmail.com

21. Mr. Mohd Sanusi Mohd Kassim
Assistant Director
Plant Biosecurity Division
Department of Agriculture Malaysia
Email: sanusikasim@gmail.com

22. Mrs. Shuerni Mohd Razi
Assistant Director
Plant Biosecurity Division
Department of Agriculture Malaysia
Email: shuerni@doa.gov.my

23. Mrs. Shahira Azwani Ali Sabri
Assistant Director
Plant Biosecurity Division
Department of Agriculture Malaysia
Email: sira.azwani@gmail.com

24. Ms. Norhayati Madiha
Assistant Director
Plant Biosecurity Division
Department of Agriculture Malaysia
Email: yatimadiha@gmail.com

25. Mr. Mohd Nazri Mohd Joha
Assistant Agricultural Officer
Plant Biosecurity Division
Department of Agriculture Malaysia
Email: nazrijoha@gmail.com

FAO

26. Dr. Piao Yongfan
Senior Plant Protection Officer
FAO Regional Office for Asia and the Pacific
39 Maliwan Mansion, Phra Atit Road
Bangkok 10200, Thailand
Tel: 662 697 4268
Fax: 662 697 4445
Email: Yongfan.piao@fao.org

27. Mr. Yusof Othman
Plant Protection Consultant
FAO Regional Office for Asia and the Pacific
39 Maliwan Mansion, Phra Atit Road
Bangkok 10200, Thailand
Tel: 662 697 4344
Fax: 662 697 4445
Email: Yusof.othman@fao.org

SECRETARIAT

28. Ms. Lailatul Jumaiyah Saleh Huddin
Principal Assistant Director
Plant Biosecurity Division
Department of Agriculture Malaysia
Email: lailasaleh@gmail.com

29. Mr. Hussain Tahir
Assistant Director
Plant Biosecurity Division
Email: hussainbintahir@gmail.com

**WORKSHOP ON MITIGATION OF SOUTH AMERICAN LEAF BLIGHT (SALB) OF RUBBER IN THE
ASIA-PACIFIC REGION-PRESENT AND FUTURE**

KUALA LUMPUR, MALAYSIA

16 – 21 OCTOBER 2016

Day 1		
Sunday	Time	Event
16/10/2016	14.00-22.00	Arrival of Participants
Day 2		
Monday	SESSION 1: OPENING CEREMONY	
17/10/2016	Time	Event
	9.00-9.30	Registration
	9.30	Arrival of Director General, Department of Agriculture Malaysia
	9.45	Arrival of Secretary General, Ministry of Agriculture and Agro-Based Industry
	10.00	(i) Welcome Remarks by Executive Secretary of The Asia and Pacific Plant Protection Commission and Update of 29 th Session of APPPC
	10.20	(ii) Opening Address by Secretary General, Ministry of Agriculture and Agro-Based Industry
	10.30	One Health - Biosecurity, Biosafety, Food Security and Environmental Health Framework
	10.40	Group Photography Session

	10.40-11.30	Morning Tea / Press Conference
SESSION 2: INTRODUCTION		
	Time	Event
	11.30-11.45	(iii) Introduction of Participants
	11.45-12.15	(iv) Purpose and Scope of Workshop – workshop objectives and expected output (v) (Presenter: Datin Jatih Aliah Timin)
	12.15-13.00	Update status and distribution of SALB in American tropics and new development on SALB issues (Presenter: SALB Expert – Dr. Ismail Hashim)
	13.00-14.00	Lunch
SESSION 3: SALB ISSUES AND COUNTRY PRESENTATIONS		
	Time	Event
	14.00-15.00	Cont.: Update status and distribution of SALB in American tropics and new development on SALB issues (Presenter: SALB Expert – Dr. Ismail Hashim)
	15.00-17.00	Country Report-activities pertaining to protection against the introduction of SALB
	17.00-17.30	Tea
	19:45-21:00	Official Welcome Dinner
Day 3		
Tuesday	SESSION 4: PEST STATUS OF SALB / SURVEILLANCE	
18/10/2016	Time	Event

9.00-10.00	Pest Surveillance, Status and Reporting (ISPM 6, ISPM 8 & ISPM 17) (Presenter: Mr. Yusof Othman)
10.00-10.30	Morning Tea
10:30-12.30	Group Breakout 1: Discussion on Pest Status of SALB and Surveillance in Asia and Pacific Region and SALB endemic countries Group 1: Pest Status of SALB (Asia and Pacific Region) and SALB endemic countries (Categorization of countries based on information) (Facilitator : Dr. Ismail Hashim) Group 2: Surveillance of SALB (Facilitator: Mr. Yusof Othman)
12.30-14:00	Lunch
14.00-15.00	Group Presentation
SESSION 5: REQUIREMENTS FOR PEST FREE AREA / PEST FREE PLACES OF PRODUCTION / PEST FREE PRODUCTION SITES	
15.00-16.00	Establishment of Pest Free Areas and Pest Free Places of Production or Pest Free Production Sites (ISPM 4 & ISPM 10) (Presenter: Mr. Yusof Othman)
16:00-17:00	Group Breakout 2: Discussion on Requirements for Establishment of Pest Free Area and Pest Free Production Sites/ Pest Free Place of Production (Facilitator: Mr. Yusof Othman) Group 1: Requirements for Establishment of Pest Free Area Group 2: Requirements for Establishment of Pest Free Production Sites/ Pest Free Place of Production

	17.00-17.30	Tea
Day 4		
Wednesday 19/10/2016	FIELD VISIT	
	Time	Event
	9.00-13.00	Field visit to Rubber Technology Centre, Malaysian Rubber Board
	13:30-15:00	Lunch
	SESSION 5 (CONT.): GROUP DISCUSSION	
	15:00-16:00	Group Breakout 2: Discussion on Requirements for Establishment of Pest Free Area and Pest Free Production Sites/ Pest Free Place of Production (Facilitator: Mr. Yusof Othman) Group 1: Requirements for Establishment of Pest Free Area Group 2: Requirements for Establishment of Pest Free Production Sites/ Pest Free Place of Production
	16.00-17.00	Group Presentation
	17:00-17:30	Tea
Day 5		
Thursday 20/10/2016	SESSION 6: RECOGNITION OF SALB PEST FREE AREA	
	Time	Event
	9.00-9.30	ISPM 29: Recognition of Pest Free Area and Area of Low Pest Prevalance (Presenter: Ms. Lailatul Jumayyah Saleh Huddin)
	9.30-10.30	Discussion on Recognition of PFA of SALB in SALB endemic countries.

	10.30-11.00	Morning Tea
	11.00-11.30	Draft on Outline Standard operating procedure on establishment of SALB pest free area in SALB Endemic Countries.
	11.30-13.00	Preparation of Standard operating procedure on establishment of SALB pest free area in SALB Endemic Countries. Group 1:TBA Group 2:TBA
	13.00-14:15	Lunch
SESSION 7: PRESENTATIONS		
	Time	Event
	14.15-16.00	Cont.
	16.00-17.00	Presentation of Standard Operating Procedures
	17.00-17.30	Tea
Day 6		
Friday 21/10/2016	SESSION 8: DISCUSSION & CLOSING	
	Time	Event
	9.00-10.30	Discussion on future action plan on SALB programme in rubber producing country -Legislation -Import requirement -Capacity building -Adoption of SOP on SALB PFA
	10.30-11.00	Morning Tea

	11:00-12.00	Discussion on future action plan on SALB programme in rubber producing country
	12.00-14.30	Lunch and Friday Prayer
	14.30	Arrival of Deputy Director General, Department of Agriculture Malaysia
	14.40-15.00	Conclusion and outcome of the workshop by APPPC representatives
	15:00-15:30	Closing remarks by Deputy Director General, Department of Agriculture Malaysia
	15:30-16:00	Presentation of Certificates and closing
	16:00-17:00	Tea and End of the Workshop