

Malaysian exports of palm oil and palm oil products constitute the key pillar of the national economy. The industry provides employment to over 555 000 oil palm smallholders (Kushairi *et al.*, 2017), as well as those engaged in the downstream industries. The impact on the economy, social and environment as a consequent of a new pest incursion is therefore enormous. Currently, there are relatively few pests and diseases affecting oil palm in Malaysia, such as *Ganoderma* basal stem rot, rhinoceros beetle and bagworms, but there are still no other devastating oil palm disease in the region (Turner and Gilbanks, 2003; Idris, 2011; Fee, 2017; Noorhazwani *et al.*, 2017). The increased risks in Malaysian oil palm industry are primarily due to the increased globalisation of trade, which increases the risk of importing pests and pathogens that can cause serious damage to oil palm. As a result, the comprehensive biosecurity risk management and emergency response plan for the Malaysian oil palm industry have been developed in order to mitigate and manage the threat of devastating pests and diseases in Malaysian oil palms (Kushairi *et al.*, 2018). Key exotic threats were identified through an exhaustive literature review of oil palm pests and diseases reported from 44 oil palm producing countries, including bud rot, *Fusarium* wilt and *cadang-cadang* viroid. These threats have caused significant devastating diseases to oil palm cultivation in the African and South American continents, and therefore any planting materials from these countries demand our utmost vigilance, as they pose grave threats to the local oil palm industry, if introduced.

The development of Biosecurity Plan offers protection from the risks posed by exotic organisms through actions such as exclusion, eradication, and control (Kushairi *et al.*, 2018) (Figure 1). However, effective action relies on the

proper implementation of Biosecurity Plan by all stakeholders, including government agencies, industry, and the public, particularly at the pre-border, border and post border.



Figure 1. Biosecurity Plan for the Malaysian Oil Palm Industry book.

OBJECTIVE

SawitSecure is designed as an easy access platform to filter out comprehensive resources on exotic pests, diseases and weeds of oil palm from 44 oil palm growing countries. The application also serves as a quick reference for stakeholders to recognise the exotic diseases, pests or weeds. The application also contains informative fact sheets on oil palm pests, diseases and exotic weed species associated with oil palm plantations.

BIOSECURITY PLAN FOR OIL PALM SMART MOBILE APPLICATION (SawitSecure)

This application was developed to provide information about the threats that may infect the Malaysian palm industry. It is hoped that the development of this application will enable the Malaysians, especially the palm planters, to recognise all those pests, diseases and weeds that are harmful to their plantation. Figure 2 shows the main page of the mobile application.

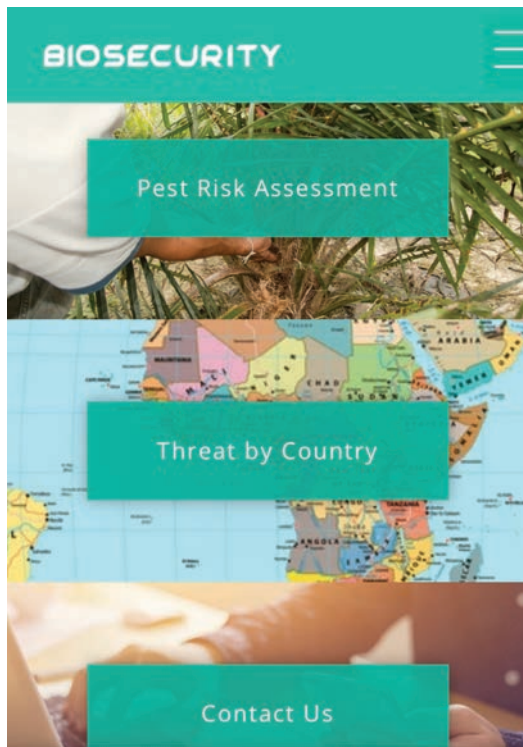


Figure 2. SawitSecure homepage.

Menu Pest Risk Assessment (PRA) contains information on a total of 123 priority oil palm selected pests (17), diseases (8) and weeds (98) that have high probabilities of entry, establishment and spread, as well as potential to have an economic consequence to the industry (Figure 3). Based on the PRA analysis, *Coconut Cadang-Cadang Viroid* (CCCVd) that caused Cadang-Cadang disease to coconut, *Fusarium oxysporum* f.sp. *elaeidis* (vascular wilt) and *Phytophthora palmivora* (bud rot) were categorised as extremely risk, three pests namely *Darna furva*, *Darna catenatus*, *Oryctes boas*, *Oryctes monoceros* were considered as highly risk, *Lincus spurcus*, *Lincus lethifer*, *Lincus lobuliger*, *Rhadinaphelenchus cocophilus*, *Candidatus phytoplasma palmae* and *Candidatus phytoplasma*

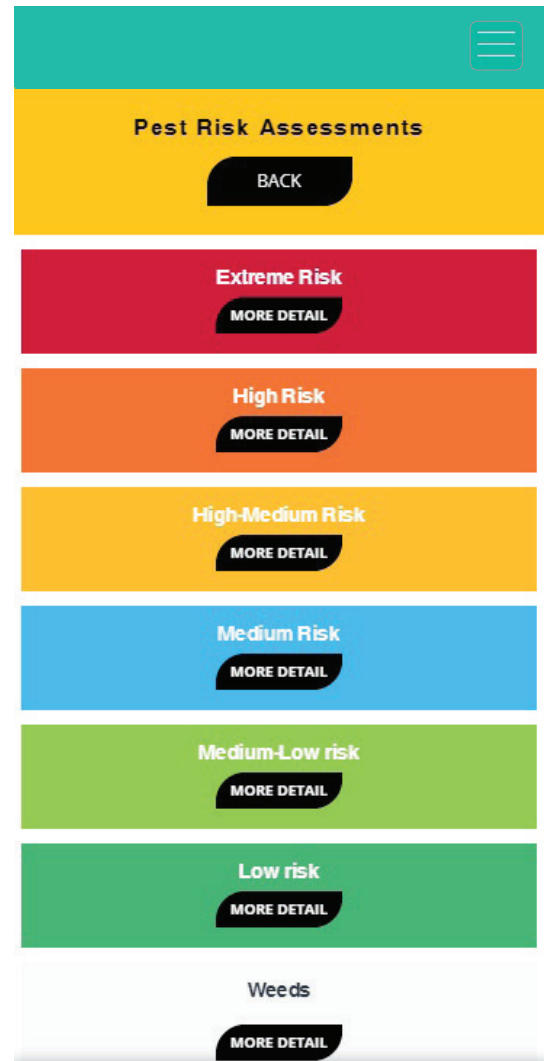


Figure 3. Pest Risk Assessment menu bar.

asteris as high medium risk, *Cercospora elaeidis* in medium risk category, *Darna metaleuca* (= *Euprosterina elaeasa*), *Rhynchophorus palmarum*, *Metamasius hemipterus*, *Leptopharsa gibbicarina*, *Limnobaris calandriiformis*, *Dynamis borassi*, *Phytomonas staheli* were measured as medium low risk, whilst *Hispoleptis elaeidis*, *Hispoleptis subfasciata*, *Myndus crudus* and Potyvirus SCMV strain as low risk threats. It also includes 98 species of exotic weeds which are not present/recorded yet in Malaysia which pose a potential threat to Malaysian oil palm plantation. The awareness materials included in the PRA menu offer general information on symptoms, description of pests, distribution, prevention and control.

Threat by Country section provides information on list of more than 600 pests, diseases and weeds associated with oil palm plantations in 44 countries. These threats fall into three categories, list of pests, list of diseases and list of weeds. Each category displays a list of threats based on the

country in which the distribution occurred. The information provided may serve as a guide for the phytosanitary study of Department of Agriculture Malaysia (DOA) and for handling quarantine process of Malaysian Quarantine and Inspection Services (MAQIS). Lastly, Contact Us (Figure 4) section provides a platform for stakeholders such as plantation owners, researchers or officers from DOA or MAQIS to easily send report or attach pictures to MPOB if they spot any abnormalities in the plantations or port of entry using the application.

Figure 4. Contact Us form.

BENEFITS

SawitSecure is an ideal tool kit for biosecurity risk management and emergency response plan for the Malaysian oil palm industry. The application provides direction and guidance to all relevant sectors in pre-emptive actions, emergency response and incursion management. In emergency cases – stakeholders can easily send report or attach pictures to MPOB if they spot any abnormalities in the plantations or port of entry using the application. In the future, resources such as plant pest disease identifications, training programme and media will also be included in the application.

REFERENCES

- Fee, C G (2017). Review on major pests management in oil palm. *The Planter*, (93): 29-47.
- Kushairi, A; Singh, R and Ong-Abdullah, M (2017). The oil palm industry in Malaysia: Thriving with transformative technologies. *J. Oil Palm Res.*, (24): 431-439.
- Idris, A S (2011). Other devastating diseases in oil palm. *Further Advances in Oil Palm Research (2000 – 2010)*, (Basri, M W; Choo Y M and Chan, K W eds.). MPOB, Bangi. p. 522-542.
- Kushairi, A; Ahmad Parveez, G K; Norman, K; Idris, A S; Rusli, M H; Maizatul, S M and Sundram, S (2018). *Biosecurity Plan for the Malaysian Oil Palm Industry*. MPOB, Bangi. 168 pp.
- Noorhazwani, K; Siti Ramlah, A A; Mohamed Mazmira, M M; Mohd Najib, A; Che Ahmad Hafiz, C M and Norman, K (2017). Controlling walker (Lepidoptera: Psychidae) outbreak using *Bacillus thuringiensis* at an oil palm plantation in Slim River, Perak, Malaysia. *J. Oil Palm Res.*, (29): 47-54.
- Turner, P D and Gillbanks, R A (2003). *Oil Palm Cultivation and Management*. The Incorporated Society of Planters, Kuala Lumpur, Malaysia.

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