IPM PRACTICES AND CHALLENGES OF IMPLEMENTATION IN MALAYSIAN AGRICULTURE

AMALAN IPM DAN CABARAN DALAM PERTANIAN MALAYSIA

by

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Introduction

- The practices of IPM in Malaysia have been increasingly adopted since the 70s

- Many definitions of IPM but popularly it “ involves the judicious selection and integration of all available methods for control of pests and diseases implemented in a cost effective manner with consideration of environmental protection”

Six main methods to select and integrate in IPM

(Enam cara kawalan untuk dipilih dan diintegrasi dalam IPM)

- Cultural
- Host plant resistance
- Biological control
- Physical
- Chemical
- Regulatory

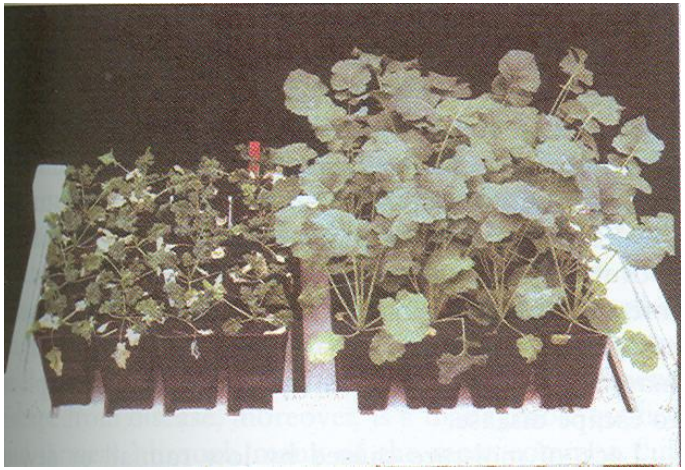
1.Cultural Method (Cara Kultur)

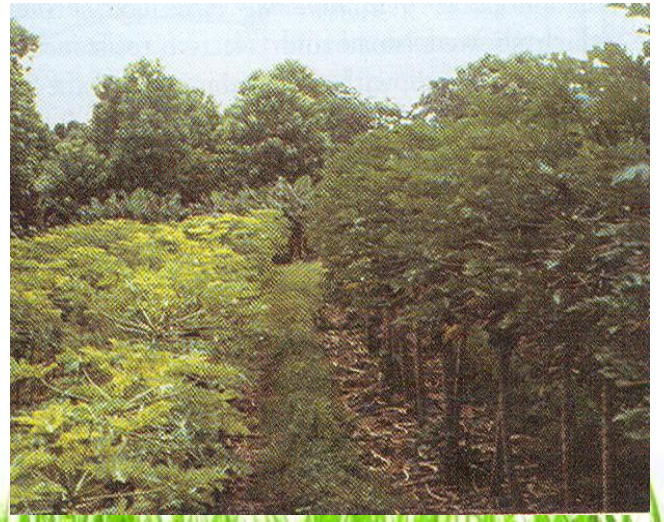
Good,practical and safe agricultural practices help farmers to reduce pests and diseases.

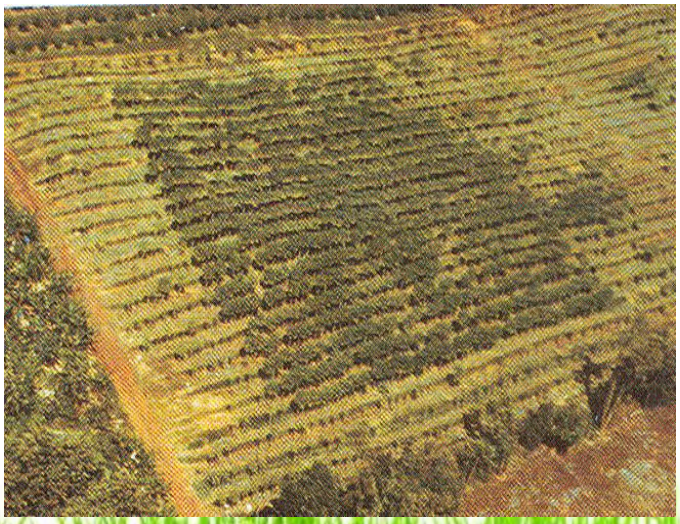
Sanitation

Pruning, bagging and removal of infected plants

2. Host Plant Resistance (Tanaman rintang)







3.Biological method(Cara biologi)

Elimination of pests and pathogens using beneficial natural enemies and bioagents

- Predators
- Parasitoids
- Microbial bioagents:

  Fungi, bacteria, mycorrhiza etc.

Predators (Barn Owls)

Parasitoids : Trichogramma spp.

(DOAE Thailand,2010)

- **Also used in IPM of sugarcane in Malaysia**

Release of Trichogramma spp. in rice field

(DOAE Thailand, 2010)

Microbial bioagents

- Commercial usage in Malaysia is limited
- Natural example of antagonistic fungi:*Verticillium* against *Hemileia*
- Practical control :Mycorrhiza against *Ganoderma*

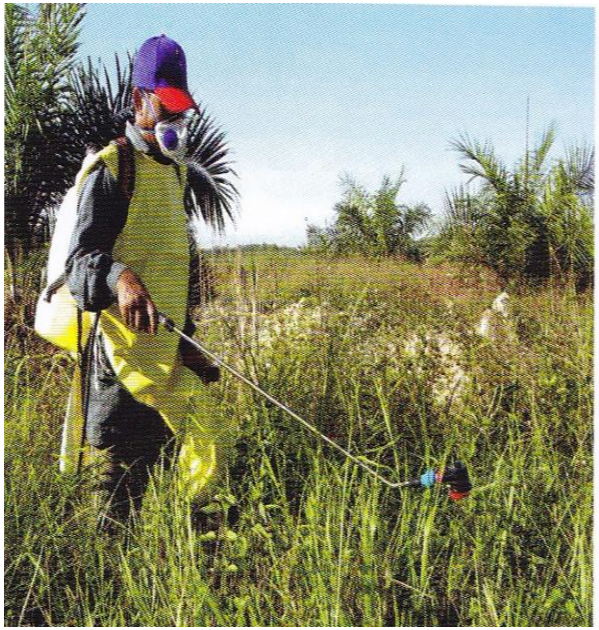
4. Physical Method (Cara fizik)

- Temperature, hot water, drying, cooling, radiation etc.

Soil solarization (Agrios,2005)

5. Chemical method(Cara Kimia)

- Increase use of illegal pesticides
- Problems of insecticide, fungicide and herbicide resistance



- ✓**Herbicides**
- ✓**Insecticides**
- ✓**Fungicides**
- ✓**Rodenticides**

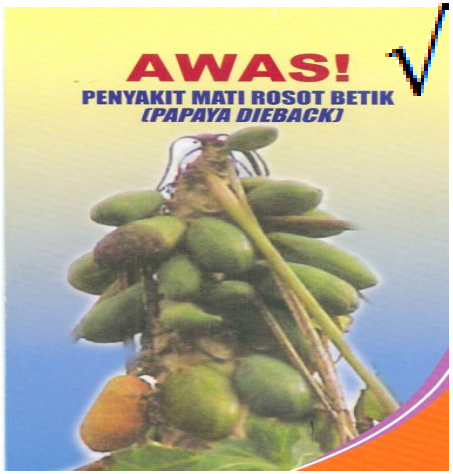
6. Regulatory method(Cara perundangan)

Plant quarantine

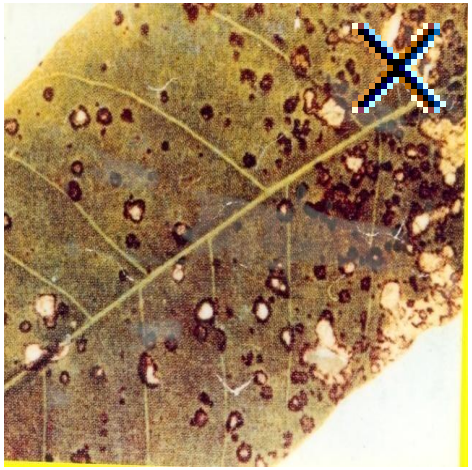
DILARANG

MASUK

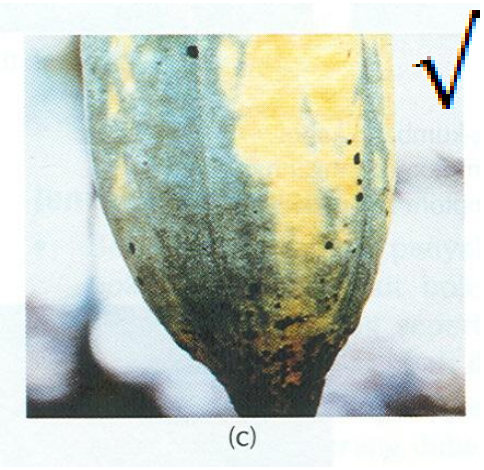
STRICTLY NO ENTRY TO MALAYSIA!



Papayadieback (Source:DOA)



South American leaf blight(SALB) of rubber(Source:LGM)



Cocoa pod borer(Source:LKM)

Fusarium wilt of oil palm

- Invasive species to rice in Malaysia:
  Golden apple snail
  'Sheath brown rot' caused by Pseudomonas fuscovaginae

Table1.Successful examples of IPM practices implementation

Crop	Period	Pest/Disease
Oil Palm	70s to now	Bagworms
	70s to now	Rats
	90s to now(post zero burning)	Rhinoceros beetle (*Oryctes*)
	90s to now	Basal stem rot (*Ganoderma*)
Rubber	70s to now	Leaf disease *(Oidium)*
	70s to now	Root disease (*Rigidiporus*)
Cocoa	80s to now	Mirids (*Helopeltis*)
	80s to now	CPB (*Conopomorpha*)
Rice	70s to now	BPH (*Nilaparvata*)
		Penyakit merah (Tungro Virus)
Vegetables	70s to now	Diamond back moth (*Plutella*)
Fruits	70s to now	Fruit fly (*Bactrocera*)

CHALLENGES IN IPM PRACTICES MALAYSIA

1. Finding alternatives to chemical control and conventional pesticides usage.

   There is no reduction in the use of pesticides in Malaysian agriculture.

   Is ‘zero pesticide’ feasible?

2.Increase provision of training in IPM


(DOAE Thailand,2010)

More resources are needed to train farmers and plant protectionists at all levels including correct diagnosis of key pests and diseases and practical methods to determine economic threshold levels of pests for effective IPM.

3.Shortage of labor experienced in various sectors in Malaysian agriculture could hamper IPM.

Effective IPM is supported by correct diagnosis, constant monitoring of pest and disease incidences and right timing of control.

4.Increase support for Research and Development by government and private sectors.

In 2011, the Ministry of Higher Education allocated the LRGS (Long Term Research Grant Scheme) funding to UPM to conduct a research program on food security with the objective of increasing rice productivity.


شكراء
ありがとう
Thank you
谢谢
Merci
Terima Kasih
Danke
متشكرم