

# **The Major Arthropod Pests and Weeds of Agriculture in Southeast Asia:**

## **Distribution, Importance and Origin**

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## **Foreword**

ACIAR has, for some years, given strong support to efforts to promote biological control of pests and weeds as an alternative to ever more intensive use of chemical pesticides. There is mounting evidence of health and environmental problems caused by excessive application of pesticides and we believe that, in many cases, these could be greatly reduced or even eliminated by the natural alternative of biological control.

One of the first projects (undertaken by Dr D.F. Waterhouse, ACIAR Consultant in Plant Protection), was a concerted effort to increase the use of biological control in the oceanic South Pacific. Most of the important pests and weeds in that region have been introduced from overseas and there is great scope for their natural enemies also to be introduced to restore the balance. However, lack of knowledge was hindering practical implementation. The initial approach was therefore to undertake a comparative survey of South Pacific nations in order to establish which pests and weeds were present in each and what seriousness rating was given by each country. The results were put together in comparative tables, which appeared in the ACIAR publications "Biological Control: Pacific Prospects" (1987) and its Supplement 1 (1989). These reference works also contain individual chapters on the 38 invertebrate pests and 18 weeds rated as most important in the region as a whole. Each chapter describes a pest species, its habits and distribution, the damage it causes, its known natural enemies and the prospects for using these for biological control. These books have proved so useful as reference texts that, at the request of the region, a second supplement is to be published in 1993.

One particular advantage of this survey was that it gave donor agencies an overall perspective of the region's problems and prospects. ACIAR also helped to sponsor workshops and other meetings at which donor and country representatives could discuss and plan, and as a result of these activities there has been a very marked increase in biological control activities in the South Pacific.

"Biological Control: Pacific Prospects" and its supplement has aroused great interest in other parts of the world and especially in Southeast Asia. The record of biological control achievements in Asia is much poorer than that of the Pacific, and ACIAR supported the view that a similar operation for Southeast Asia would also stimulate biocontrol work there with vastly greater economic benefits than in the Pacific because of the enormously greater population. As a first step ACIAR has commissioned Dr D.F. Waterhouse (senior author of "Biological Control: Pacific Prospects"), to undertake a comparative survey of pests and weeds in the 10 Southeast Asian countries and their priority ratings in each. The results of this survey are presented in this volume.

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## **1. Abstract**

The information assembled, which is summarised in 16 tables, is intended to provide a data base that will permit, inter alia, the selection of appropriate target pests for classical biological control.

Agricultural experts provided the raw data on the distribution and importance of the pests of most concern to the 10 countries comprising Southeast Asia. This enabled the identification of 455 major arthropod pests and 232 major weeds.

Of the 455 arthropod pests nominated, a subgroup of 150 species was rated as highly important. Of these, at least 24 are thought to be exotic to the region and are thus potential targets for classical biological control. Indeed, at least 8 of these species, have already been investigated elsewhere and some control successes have been reported.

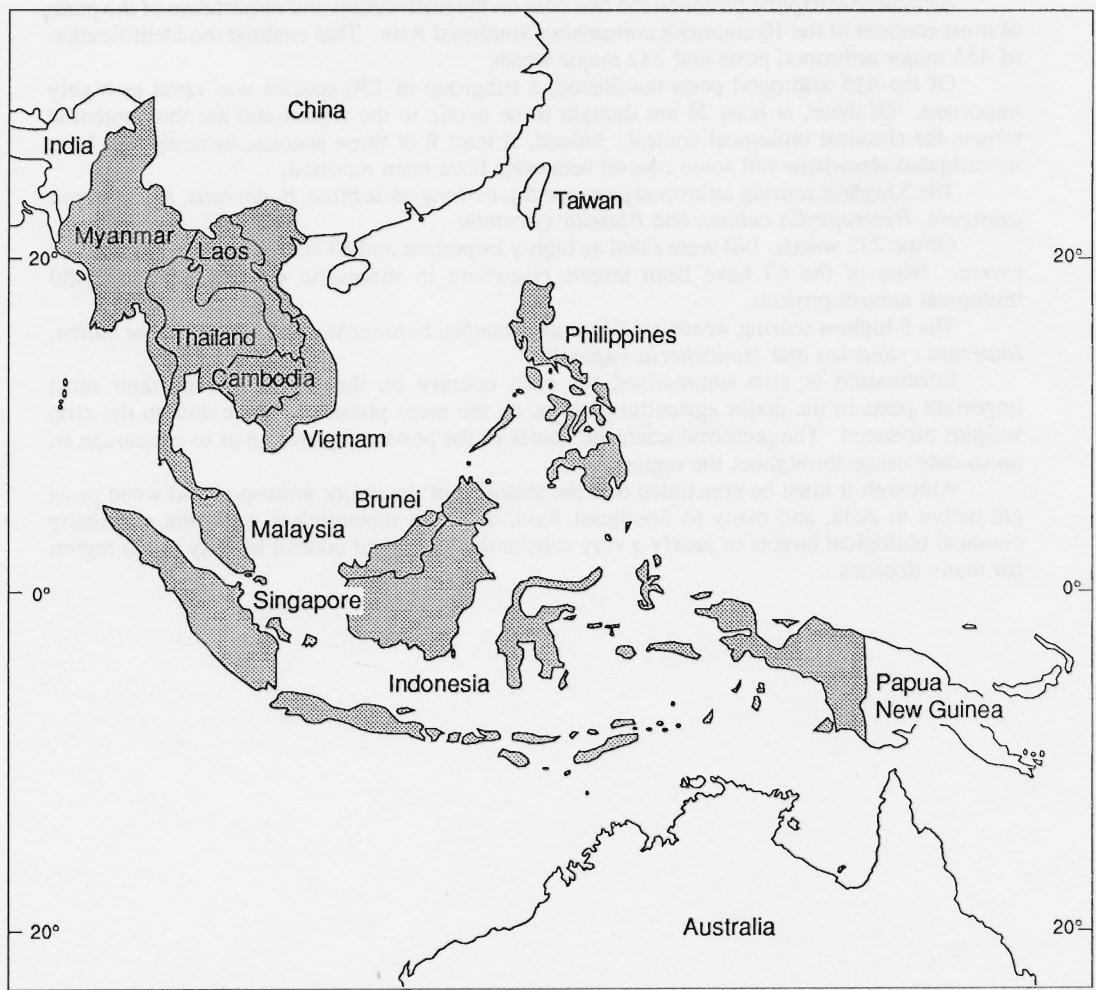
The 5 highest scoring arthropod pests are *Bactrocera cucurbitae*, *B. dorsalis*, *Helicoverpa armigera*, *Heteropsylla cubana* and *Plutella xylostella*.

Of the 232 weeds, 140 were rated as highly important and 63 of these are believed to be exotic. Nine of the 63 have been targets elsewhere in successful or partially successful biological control projects.

The 5 highest scoring weeds are *Cyperus rotundus*, *Echinochloa colona*, *Eleusine indica*, *Imperata cylindrica* and *Monochoria vaginalis*.

Information is also summarised for each country on the occurrence of their most important pests in the major agricultural crops, on the areas planted to these and on the crop weights produced. The preferred scientific names of the pests are given, so as to encourage an up-to-date usage throughout the region.

Although it must be concluded that the majority of the major arthropod and weed pests are native to Asia, and many to Southeast Asia, there are nevertheless sufficient promising classical biological targets to justify a very substantial biological control activity in the region for many decades.



**Figure 1.** The ten countries comprising Southeast Asia.

## 2. Introduction

The data in this publication have been assembled to facilitate the selection of suitable target pests for biological control, although it is anticipated that a range of other purposes will be served as well. The 10 Southeast Asian countries are Myanmar (Burma), Thailand, Laos, Cambodia, Vietnam, Malaysia, Singapore, Brunei, Indonesia and Philippines.

The cost of a biological control project is much the same whether or not a pest is important so, for optimal use of resources, it is first necessary to establish which are the major pests; and, if a region as extensive as Southeast Asia is being considered, what their distribution is within it.

Secondly, for classical biological control (the introduction of selected natural enemies from the region where the target exotic pest originated), it is necessary to establish which of the major pests are introduced and from where. The present tables deal, *inter alia*, with these two aspects.

The third step is to identify those pests where there is unlikely to be conflict of interest in using biological control. Such conflict arises where control of an organism is desirable in one situation, but undesirable in another and arises because natural enemies of a pest are most unlikely to distinguish between these two situations (for example, a major crop weed that is, at the same time, a valuable pasture or lawn grass).

The final step in preparing the groundwork for the selection of suitable target pests is to assemble all available information for each major introduced pest, of its natural enemies and the prospects for using these for biological control, including whether or not this has been tried or achieved elsewhere. These third and fourth steps will be covered in a later publication.

For all countries in the region where this has been possible, information on the distribution and importance of arthropod pests and weeds has been generously supplied by plant protection specialists (acknowledged in section 3) nominated by their respective Directors of Agriculture. This information has been supplemented in some instances with data from other experts and occasionally also from the literature. Thus, the validity of the records and their completeness depends largely upon information supplied by country experts, although this has been cross-checked on the limited number of occasions where this has been possible.

It is expected that errors of omission will far exceed those of commission in the data supplied. Perceptions of the importance of individual pests will undoubtedly change as more is learnt about each of them, as agricultural practices change and as changes occur in the relative values of the crops affected. For such reasons, the tables must be regarded primarily as a preliminary data base, which will require (initially) correction of unintentional errors and then continuous updating. I would, indeed, be most grateful if errors and omissions can be drawn to my attention; also of additional ways in which the information might be assembled, so that it can best serve its main purpose of focussing attention on promising targets for classical biological control.

Correspondents were asked to supply information on pest seriousness (and distribution) on a very simple rating system:

- +++ very widespread and very important
- ++ widespread and important
- + important locally
- present, but not important

The last entry (•) has also been used when the presence of a species in a country is mentioned in the literature, but without sufficient information to assign a rating of pluses. Experience in the Pacific showed that any more sophisticated system requires more information than is generally available in most countries and, furthermore, would attempt to achieve a degree of accuracy greater than that required for the present purpose.

Although a simple rating system based on personal assessments of the extent of spread and the degree of importance of a pest has a very large subjective component, it nevertheless contains a quantitative element. In examining whether use can be made of this element, it is necessary to be aware of inherent limitations of the system:

- (i) it has only a small number (four) of not-well-separated categories

- (ii) although the extent of infestation can generally be established fairly accurately, importance is far more difficult to evaluate. It is influenced mainly by cost of existing control measures and by reductions in yield or value of the product
- (iii) different experts in a country sometimes rate pests differently, because of varying perceptions of the damage caused.

Nevertheless, some advantages of the system are that:

- (i) it requires country experts to attempt a relative value judgement (sometimes for the first time) of a large number of pests
- (ii) it enables these experts to compare their perceptions with those of nearby countries, in the process exposing real or apparent anomalies whose resolution may be revealing (and rewarding)
- (iii) it highlights regional problems which may benefit from collaborative action (perhaps with multilateral donor support)
- (iv) it directs attention to a pest of particular significance to an individual country, but not to adjacent countries, thereby focussing action on bilateral donor support.

Bearing in mind reservations that arise from the foregoing, it is instructive to examine whether some simple arithmetical clumping of the ratings will assist in a broad stratification of the pest problems in Southeast Asia.

In this exercise a heavy political and information bias is introduced. As to the political bias, the ratings for nations small in size and population (eg Singapore) are given the same weight as those for large nations (eg Philippines, Indonesia). As to information bias, the amount of detailed knowledge on pests held by any one of five countries (Thailand, Vietnam, Malaysia, Indonesia, Philippines) far exceeds that of the aggregate of information available in the remaining five countries. Nevertheless, if the sum of the ratings for the five foregoing countries is compared with that for the entire region a broadly similar picture of importance emerges, particularly for the most important pests.

It is not unusual for some pests to be known under different scientific names in different countries of the region or even in different areas of the same country. Difficulty has thus been experienced at times in establishing the most appropriate scientific name to be used. In such instances a preferred name has been adopted after advice from expert taxonomists and consultation with sources such as Wood (1989) and Moody (1989). For convenience, alternative names that have been dropped are cross referenced in the two main tabulations of preferred names, one for arthropods (table 15) the other for weeds (table 16).

Like the exercise in the Pacific, the Southeast Asian survey is proving to be a highly interactive process in which all of us who are involved are learning a lot. Some countries are now preparing their own detailed lists for publication and pest nomenclature is rapidly becoming more uniform. Furthermore, with steady encouragement, countries are continuing to revise their ratings as a result of more careful assessment of the damage each pest is causing, taking into account also assessments by experts in nearby countries of the damage caused there.

### **3. Contributors**

This survey could not have been undertaken without access to the information supplied by a large number of plant protection specialists throughout the region. I am particularly grateful to those listed below (and their colleagues) for the time and patience displayed in collating information for their countries; also for following up the numerous requests made for clarification of nomenclature or of level of pest importance and for reviewing from time to time the steadily growing body of information for the region.

I would be most grateful to receive corrections, additions (and criticisms!) so that a subsequent edition of these tables can incorporate improvements. These should be addressed to me at Division of Entomology CSIRO, GPO Box 1700, Canberra, Australia, 2601, Fax (06) 246 4028.

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#### **4. Results**

The tables that follow (except Table 15 with production statistics) deal with the valid species that have been nominated since 1990 as major Southeast Asian pests by the Plant Protection specialists of the various Southeast Asian countries. Species that have only been listed as 'present but not important' and not been given a higher rating by any country have been omitted.

It is probable that many of the species occur far more widely than is shown in the tables, especially in Brunei, Cambodia, Laos and Myanmar where the amount of information available is limited. It is hoped that the gaps in the tables will stimulate the publication of additional records, or at least the provision of up-to-date information to ACIAR for inclusion when the tables are revised. It is entirely possible also that some of the •'s derived from the literature, unintentionally underrate the importance of a particular pest for that country.

**Table 1** Major arthropod pests in Southeast Asia.

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Acanthocoris scaber</i> (Linnaeus)	HEM	Coreidae		chilli, ipomoea
<i>Acanthoscelides obtectus</i> (Say)	COL	Bruchidae		pigeon pea
<i>Aceria litchi</i> (Keifer)	ACA	Eriophyidae	litchi gall mite	litchi
<i>Aceria mangiferae</i> (Sayed)	ACA	Eriophyidae	mango bud mite	mango
<i>Aceria tulipae</i> (Keifer)	ACA	Eriophyidae	onion mite	onion
<i>Achaea janata</i> (Linnaeus)	LEP	Noctuidae	castor semi-looper	castor, cocoa
<i>Achaea melicerta</i>	see <i>Achaea janata</i>			
<i>Achaea pentasema</i>	see <i>Achaea serva</i>			
<i>Achaea serva</i> (Fabricius)	LEP	Noctuidae		castor
<i>Acherontia lachesis</i> (Fabricius)	LEP	Sphingidae	death's head hawk moth	sesame, egg plant
<i>Acherontia styx</i> (Westwood)	LEP	Sphingidae	small death's head hawk moth	sesame, egg plant
<i>Acontia transversa</i>	see <i>Xanthodes transversa</i>			
<i>Acraea issoria</i> (Hübner)	LEP	Nymphalidae		ramie
<i>Acrocercops cramerella</i>	see <i>Conopomorpha cramerella</i>			
<i>Acrocercops symbolopsis</i> Meyrick	LEP	Gracillariidae		noseberry
<i>Acrocercops syngramma</i> Meyrick	LEP	Gracillariidae	cashew leafminer	cashew
<i>Acryptorhynchus frigidus</i>	see <i>Sternochetus frigidus</i>			
<i>Adoretus compressus</i> (Weber)	COL	Scarabaeidae	rose beetle	polyphagous
<i>Adoretus sinicus</i> Burmeister	COL	Scarabaeidae	rose beetle	polyphagous
<i>Adoxophyes privatana</i> Walker	LEP	Tortricidae		groundnut, rambutan
<i>Agrius convolvuli</i> (Linnaeus)	LEP	Sphingidae		sweet potato
<i>Agromyza phaseoli</i>	see <i>Ophiomyia phaseoli</i>			
<i>Agromyza sojae</i>	see <i>Melanagromyza sojae</i>			
<i>Agrotis ipsilon</i> (Hufnagel)	LEP	Noctuidae	black cutworm	polyphagous
<i>Agrotis segetum</i> (Denis and Schiffermüller)	LEP	Noctuidae	common cutworm	brassicas, potato
<i>Alcidodes sp.</i>	COL	Curculionidae	shoor borer	mango
<i>Alcidodes leeuweni</i> (Heller)	COL	Curculionidae		kapok
<i>Aleurodicus destructor</i> Mackie	HEM	Aleyrodidae	coconut whitefly	star gooseberry
<i>Aleurodicus dispersus</i> Russell	HEM	Aleyrodidae	spiraling whitefly	papaya, guava
<i>Aleurolobus barodensis</i> (Maskell)	HEM	Aleyrodidae	sugarcane whitefly	sugarcane
<i>Alissonotum impressicolle</i> Arrow	COL	Scarabaeidae	black sugarcane beetle	sugarcane
<i>Allocarsidara malayensis</i> (Crawford)	HEM	Carsidaridae		durian
<i>Amathusia phidippus</i> (Linnaeus)	LEP	Amathusiidae		coconut
<i>Amorphoidea lata</i> Motschulsky	COL	Curculionidae		cotton
<i>Amrasca</i> sp.	HEM	Cicadellidae	palm king	soybean, mung bean

**Table 1**

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Amrasca biguttula</i>				
<i>Amrasca devastans</i> (Distant)	HEM	Cicadellidae	cotton leafhopper	cotton
<i>Amritodus atkinsoni</i> (Lethierry)	HEM	Cicadellidae	mango leafhopper	mango
<i>Amsacta lactinea</i> (Cramer)	LEP	Arctiidae	red tiger moth	groundnut
<i>Anomala</i> spp.	COL	Scarabaeidae		groundnut, jackfruit
<i>Anomala antiqua</i> (Gyllenhal)	COL	Scarabaeidae		groundnut, castor
<i>Anomala cupripes</i> (Hope)	COL	Scarabaeidae		cloves, potato
<i>Anomala pallida</i> (Fabricius)	COL	Scarabaeidae		rubber, cowpea, cocoa, coconut
<i>Anomala varians</i> (Olivier)	COL	Scarabaeidae	cotton semi-looper	groundnut
<i>Anomis flava</i> (Fabricius)	LEP	Noctuidae		cotton
<i>Anoplophora chinensis</i> (Forster)	COL	Cerambycidae	citrus longhorn beetle	citrus
<i>Antigastra catalaunalis</i> (Duponchel)	LEP	Pyralidae	sesame webworm	sesame
<i>Anua coronata</i>				
<i>Anua tirhaca</i>				
<i>Aonidomytilus albus</i> (Cockerell)	HEM	Diaspididae	cassava scale	cassava
<i>Aphis craccivora</i> Koch	HEM	Aphididae	cowpea aphid	groundnut, legumes
<i>Aphis glycines</i> Matsumura	HEM	Aphididae	soybean aphid	soybean
<i>Aphis gossypii</i> Glover	HEM	Aphididae	cotton aphid, melon aphid	cotton
<i>Apion collare</i> Schilsky	COL	Apionidae		jute
<i>Apion corchori</i> Marshall	COL	Apionidae		jute
<i>Apoderus crenatus</i> Jekel	COL	Curculionidae		mango
<i>Apoderus notatus</i> (Fabricius)	COL	Curculionidae		mango, cloves
<i>Apogonia</i> sp.	COL	Scarabaeidae		tea
<i>Apogonia cribicollis</i> Burmeister	COL	Scarabaeidae		oil palm
<i>Apriona germari</i> (Hope)	COL	Cerambycidae	longhorn stem borer	mulberry
<i>Aproaerema modicella</i> (Deventer)	LEP	Gelechiidae	groundnut leafminer	groundnut
<i>Aproaerema nerteria</i>				
<i>Aprosterna antiqua</i>				
<i>Araecerus fasciculatus</i> (De Geer)	COL	Anthribidae	coffee bean weevil	coffee
<i>Arbela dea</i> Swinhoe	LEP	Metarbelidae	bark borer	jackfruit
<i>Archips machlopis</i> (Meyrick)	LEP	Tortricidae		cocoa
<i>Archips micaceanus</i> (Walker)	LEP	Tortricidae		soybean, breadfruit
<i>Archips tabescens</i> (Meyrick)	LEP	Tortricidae		groundnut, jackfruit
<i>Argyrogramma signata</i> (Fabricius)	LEP	Noctuidae	green semi-looper	brassicas
<i>Ariadne ariadne</i> (Linnaeus)	LEP	Nymphalidae		castor
<i>Artogeia canidia</i>				
<i>Artonta catoxantha</i>	LEP	Zygaenidae	coconut leaf moth	oil palm

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Asota</i> spp.	LEP	Noctuidae		fig
<i>Aspidiots destructor</i> Signoret	HEM	Diaspididae	coconut scale	coconut
<i>Aspidomorpha furcata</i> (Thunberg)	COL	Chrysomelidae	tortoise beetle	sweet potato
<i>Aspidomorpha miliaris</i> (Fabricius)	COL	Chrysomelidae	spotted tortoise beetle	<i>Ipomoea aquatica</i>
<i>Aspongopus fuscus</i>	see <i>Coridius fuscus</i>			
<i>Astrolecanium ungulatum</i> Russel	HEM	Coccidae		durian
<i>Atherigona exigua</i> Stein	DIP	Muscidae		
<i>Atherigona oryzae</i> Malloch	DIP	Muscidae	rice seedling fly	maize
<i>Atherigona soccata</i> Rondani	DIP	Muscidae	rice seedling fly	sorghum
<i>Attacus atlas</i> (Linnaeus)	LEP	Saturniidae	sorghum shoot fly	custard apple, avocado, cinchona, rambutan
<i>Aulacaspis mangiferae</i>	see <i>Aulacaspis tubercularis</i>			
<i>Aulacaspis tegalensis</i> (Zehntner)	HEM	Diaspididae	sugarcane scale	sugarcane
<i>Aulacaspis tubercularis</i> Newstead	HEM	Diaspididae	mango scale	mango
<i>Aulacophora femoralis</i> (Motschulsky)	COL	Chrysomelidae		cucurbits
<i>Aulacophora flavomarginata</i> Duvivier	COL	Chrysomelidae		cucurbits
<i>Aulacophora foveicollis</i> (Lucas)	COL	Chrysomelidae		cucurbits
<i>Aulacophora frontalis</i> Baly	COL	Chrysomelidae		cucurbits
<i>Aulacophora lewisii</i> Baly	COL	Chrysomelidae		cucurbits
<i>Aulacophora similis</i> (Olivier)	COL	Chrysomelidae		cucurbits, watermelon, yard-long bean
<i>Bachytripes</i> sp	ORT	Gryllidae		oil palm
<i>Bactrocera</i> spp.	DIP	Tephritidae		avocado
<i>Bactrocera cucurbitae</i> (Coquillett)	DIP	Tephritidae	melon fly	cucurbits
<i>Bactrocera dorsalis</i> (Hendel)*	DIP	Tephritidae	oriental fruit fly	many fruits
<i>Bactrocera hageni</i>	see <i>Bactrocera tau</i>			
<i>Bactrocera tau</i> (Walker)	DIP	Tephritidae		melons
<i>Bactrocera latifrons</i> (Hendel)	DIP	Tephritidae		capsicum
<i>Bactrocera umbrosa</i> (Fabricius)	DIP	Tephritidae		breadfruit, jackfruit
<i>Basilepta subcostatum</i> Jacoby	COL	Chrysomelidae		banana
<i>Basilepta viridipenne</i> (Motschulsky)	COL	Chrysomelidae		banana
<i>Batocera albofasciata</i>	see <i>Batocera rubus</i>			
<i>Batocera hercules</i> (Boisduval)	COL	Cerambycidae		nutmeg
<i>Batocera rubus</i> (Linnaeus)	COL	Cerambycidae		breadfruit, jackfruit, rubber
<i>Batocera rufomaculata</i> (De Geer)	COL	Cerambycidae		cashew
<i>Bedellia somnulentella</i> (Zeller)	LEP	Lyonetiidae		sweet potato
<i>Bemisia</i> sp.	HEM	Aleyrodidae		castor, mulberry

\* This is a complex of several economic species in SE Asia

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Bemisia myricae</i> <i>Bemisia tabaci</i> (Gennadius)	see <i>Parabemisia myricae</i> HEM	Aleyrodidae	tobacco whitefly cotton whitefly	tobacco, cotton
<i>Biloba subsecivella</i> <i>Bostrychopsis parallela</i> Lesne <i>Brachmia trianuella</i> Herrich-Schaffer <i>Brachyacma palpiger</i> (Walshingham) <i>Brevicoryne brassicae</i> (Linnaeus) <i>Bruchophagus mutabilis</i> Nikolskaya <i>Bruchus analis</i> <i>Bruchus chinensis</i> <i>Bruchus obsoletus</i> <i>Cacoecia machlopis</i> <i>Cacoecia micaceana</i> <i>Cacoecia tabescens</i> <i>Cadamustus typicus</i> <i>Caliothrips indicus</i> (Bagnall)	see <i>Aproaerema modicella</i> COL LEP LEP HEM HYM see <i>Callosobruchus analis</i> see <i>Callosobruchus chinensis</i> see <i>Acanthoscelides obtectus</i> see <i>Archips machlopis</i> see <i>Archips micaceana</i> see <i>Archips tabescens</i> see <i>Stephanitis typica</i> THY	Bostrichidae Gelechiidae Gelechiidae Aphididae Eurytomidae Thripidae	cabbage aphid	bamboo sweet potato pigeon pea, soybean brassicas corkwood tree
<i>Calliteara horsfieldii</i> (Saunders)	LEP	Lymantriidae		groundnut, soybean, legumes
<i>Callitettix versicolor</i> (Fabricius) <i>Callosobruchus</i> sp. <i>Callosobruchus chinensis</i> (Linnaeus) <i>Caloclytus</i> sp. <i>Carpophilus hemipterus</i> (Linnaeus) <i>Cataenococcus hispidus</i> (Morrison)	HEM COL COL COL COL HEM	Cercopidae Bruchidae Bruchidae Cerambycidae Nitidulidae Pseudococcidae	sugarcane spittlebug cowpea bruchid citrus mealybug	tamarind, cashew, cocoa, oil palm sugarcane pea cowpea, beans acacia sorghum, maize citrus, custard apple, rambutan
<i>Catocyrops cnejus</i> <i>Cephonodes hylas</i> (Linnaeus) <i>Ceratia frontalis</i> <i>Ceratovacuna lanigera</i> Zehntner <i>Ceresium sinicum</i> White <i>Ceroplastes rubens</i> Maskell <i>Chelidonium</i> sp. <i>Chelidonium argentatum</i> (Dalman) <i>Chilo</i> spp. <i>Chilo auricilius</i> Dudgeon <i>Chilo infuscatus</i> Snellen	see <i>Euchrysops cnejus</i> LEP see <i>Aulacophora frontalis</i> HEM COL HEM COL COL COL LEP LEP LEP	Sphingidae Aphididae Cerambycidae Coccidae Cerambycidae Cerambycidae Pyralidae Pyralidae Pyralidae	coffee hawkmoth white sugarcane aphid pink wax scale	coffee sugarcane mulberry citrus, mango citrus citrus sorghum rice sugarcane
			stalk borer yellow top-borer	

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Chilo polychrysus</i> (Meyrick)	LEP	Pyralidae	darkheaded rice borer	rice
<i>Chilo sacchariphagus</i> (Bojer)	LEP	Pyralidae	sugarcane stem borer	sugarcane
<i>Chilo suppressalis</i> (Walker)	LEP	Pyralidae	striped rice borer asiatic rice borer	rice, corn
<i>Chilotraea infuscatellus</i>	see <i>Chilo infuscatellus</i>			
<i>Chilotraea polychrysa</i>	see <i>Chilo polychrysus</i>			
<i>Chionaspis papayae</i>	see <i>Phenacaspis papayae</i>			
<i>Chlorophorus annularis</i> (Fabricius)	COL	Cerambycidae	bamboo longhorn	bamboo
<i>Chlumetia transversa</i> (Walker)	LEP	Noctuidae	mango shoot borer	mango
<i>Chondracris rosea</i> (De Geer)	ORT	Acrididae		soybean
<i>Chromatomyia horticola</i> (Goureaux)	DIP	Agromyzidae		bean, brassicas, radish, lettuce
<i>Chrysodeixis chalcites</i>	see <i>Chrysodeixis eriosoma</i>			
<i>Chrysodeixis eriosoma</i> (Doubleday)	LEP	Noctuidae	corn semi-looper	maize, legumes
<i>Chrysomphalus aonidum</i> (Linnaeus)	HEM	Diaspididae	purple scale ceriulae black scale	citrus, coconut, papaya
<i>Chrysomphalus ficus</i>	see <i>Chrysomphalus aonidum</i>			
<i>Chunra niveosparsa</i>	see <i>Idioscopus niveosparsus</i>			
<i>Citripestis sagittiferella</i> (Moore)	LEP	Pyralidae	citrus fruit borer	citrus
<i>Clania variegata</i>	see <i>Cryptothelia variegata</i>			
<i>Cnaphalocrocis medinalis</i> (Guenée)	LEP	Pyralidae	rice leaffolder	rice
<i>Coccus viridis</i> (Green)	HEM	Coccidae	soft green scale	coffee
<i>Colasposoma dauricum</i> (Motschulsky)	COL	Chrysomelidae		sweet potato
<i>Conogethes punctiferalis</i> (Guenée)	LEP	Pyralidae	castor borer	castor, rambutan, ginger, carambola
<i>Conopomorpha cramerella</i> (Snellen)	LEP	Gracillariidae	cocoa podborer	cocoa, rambutan
<i>Conopomorpha sinensis</i>	LEP	Gracillariidae		litchi, longan
<i>Coptosoma japonicum</i> Matsumura	HEM	Plataspidae		corkwood tree
<i>Coptotermes curvignathus</i> Holm	ISO	Rhinotermitidae		coconut, rubber
<i>Coptotermes havilandi</i> Holmgren	ISO	Rhinotermitidae		sugarcane
<i>Coptotermes javanicus</i>	see <i>Coptotermes havilandi</i>			curcubits
<i>Coridius fuscus</i> (Westwood)	HEM	Dinidoridae		
<i>Cosmophila flava</i>	see <i>Anomis flava</i>			
<i>Cosmopolites sordidus</i> (Germar)	COL	Curculionidae	banana weevil	banana
<i>Cossus</i> sp.	LEP	Cossidae		litchi, longan
<i>Crematopsyche pendula</i> Joannis	LEP	Psychidae		oil palm
<i>Cricula trifenestrata</i> (Helfer)	LEP	Saturniidae		avocado, cashew
<i>Crocidiolomia binotalis</i>	see <i>Crocidiolomia pavonana</i>			

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Crocidolomia pavonana</i> (Fabricius)	LEP	Pyralidae	cabbage cluster caterpillar	
<i>Cryptophlebia</i> sp	LEP	Tortricidae	starfruit borer	brassicas
<i>Cryptophlebia encarpa</i> (Merryck)	LEP	Tortricidae	cocoa huskborer	carambola
<i>Cryptorhynchus goniocnemis</i>	see <i>Sternochetus goniocnemis</i>			cocoa
<i>Cryptorhynchus gravis</i>	see <i>Sternochetus gravis</i>			
<i>Cryptorhynchus mangiferae</i>	see <i>Sternochetus mangiferae</i>			
<i>Cryptothelea variegata</i> (Snellen)	LEP	Psychidae	sweet potato weevil	clove, polyphagous
<i>Cylas formicarius</i> (Fabricius)	COL	Apionidae	sweet potato	sweet potato
<i>Cyrtacanthacris tatarica</i> (Linnaeus)	ORT	Acrididae	maize	maize
<i>Cyrtopeltis tenuis</i> Reuter	HEM	Miridae	tobacco, tomato	tobacco, tomato
<i>Dacus</i> spp.	see <i>Bactrocera</i> spp.			
<i>Dacus hageni</i>	see <i>Bactrocera tau</i>			
<i>Darna diducta</i> (Snellen)	LEP	Limacodidae		oil palm
<i>Darna furva</i> (Wileman)	LEP	Limacodidae		oil palm
<i>Darna trima</i> (Moore)	LEP	Limacodidae		oil palm
<i>Dasineura mangiferae</i>	see <i>Erosomyia mangiferae</i>			
<i>Dasychira horsfieldii</i>	see <i>Calliteara horsfieldii</i>			
<i>Dasychira mendosa</i>	see <i>Olene mendosa</i>			
<i>Dasynus piperis</i> (China)	HEM	Coreidae	large pepper berry bug	pepper
<i>Delia antiqua</i> (Meigen)	DIP	Anthomyiidae	onion fly	onion, garlic
<i>Deporaus marginatus</i> Pascoe	COL	Curculionidae	mango leaf-cutting weevil	mango
<i>Diacrotricha fasciola</i> Zeller	LEP	Pterophoridae		carambola
<i>Diaphania caesalis</i>	see <i>Glyphodes caesalis</i>			
<i>Diaphania indica</i> (Saunders)	LEP	Pyralidae	cucumber moth	cucurbits
<i>Diaphania pulverulentis</i>	see <i>Glyphodes pulverulentalis</i>			
<i>Diaphorina citri</i> Kuwayama	HEM	Psyllidae	citrus psylla	citrus
<i>Dichocrocis megillalis</i> (Walker)	LEP	Pyralidae		gambir
<i>Dichocrocis punctiferalis</i>	see <i>Conogethes punctiferalis</i>			
<i>Dicladispa armigera</i> (Olivier)	COL	Chrysomelidae	rice hispid	rice
<i>Diconocoris hewitti</i> (Distant)	HEM	Tingidae	pepper lace bug	pepper
<i>Diconocoris nepalensis</i> (Distant)	HEM	Tingidae	pepper lace bug	pepper
<i>Dorylus orientalis</i> Westwood	HYM	Formicidae	oriental army ant	groundnut
<i>Dorysthenes buqueti</i> (Guérin-Méneville)	COL	Cerambycidae		sugarcane, cassava
<i>Dysdercus cingulatus</i> (Fabricius)	HEM	Pyrrhocoridae		cotton
<i>Dysmicoccus brevipes</i> (Cockerell)	HEM	Pseudococcidae	pineapple mealy bug	pineapple, ginger, oil palm
<i>Dysmicoccus neobrevipes</i> Beardsley	HEM	Pseudococcidae		monkeypod
<i>Earias fabia</i>	see <i>Earias vittella</i>	Noctuidae	rough bollworm, shoot and fruit borer	cotton, okra
<i>Earias vittella</i> (Fabricius)	LEP			

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Elasmognathus nepalensis</i>	see <i>Dinocoris nepalensis</i>			
<i>Elymnias hypermnestra</i> (Linnaeus)	LEP	Satyridae	common palm butterfly	coconut
<i>Empoasca</i> sp.	HEM	Cicadellidae		cotton, legumes
<i>Empoasca biguttula</i>	see <i>Amrasca devastans</i>			
<i>Empoasca devastans</i>	see <i>Amrasca devastans</i>			
<i>Empoasca flavescens</i> (Fabricius)*	HEM	Cicadellidae		tea, soybean, egg plant
<i>Empoasca formosana</i>	see <i>Jacobiasca formosana</i>			
<i>Eotetranychus cendanai</i> Rimando	ACA	Tetranychidae		citrus
<i>Epepeotes uncinatus</i> Gahan	COL	Cerambycidae		mulberry
<i>Ephestia cautella</i> (Walker)	LEP	Pyralidae	tropical warehouse moth	soybean
<i>Epicauta gorhami</i> Marseul	COL	Meloidae	small blister beetle	soybean, hemp
<i>Epicauta maklini</i> Haag-Rutenberg	COL	Meloidae	blister beetle	groundnut
<i>Epicauta waterhousei</i> Haag-Rutenberg	COL	Meloidae		egg plant
<i>Epilachna difflinis</i> Eydoux and Souleyet	COL	Coccinellidae		egg plant
<i>Epilachna indica</i> Mulsant	COL	Coccinellidae		watermelon, egg plant, bean, cucumber
<i>Epilachna vigintioctopunctata</i> (Fabricius)	COL	Coccinellidae		egg plant, potato
<i>Erionota thrax</i> (Linnaeus)	LEP	Hesperiidae	28. spotted ladybird	banana
<i>Eriophyes boisi</i>	see <i>Eriophyes doctersi</i>		banana skipper	
<i>Eriophyes doctersi</i> Nalepa	ACA	Eriophyidae		cinnamon
<i>Eriophyes mangiferae</i>	see <i>Aceria mangiferae</i>			mango
<i>Erosomyia mangiferae</i> Felt	DIP	Cecidomyiidae		
<i>Etiella caudella</i>	see <i>Ephestia cautella</i>			
<i>Etiella zinckenella</i> (Treitschke)	LEP	Pyralidae	pea pod borer	legumes
<i>Eublemma abrupta</i> (Walker)	LEP	Noctuidae		rambutan
<i>Eublemma brachygonia</i> Hampson	LEP	Noctuidae		rambutan
<i>Eublemma versicolor</i> (Walker)	LEP	Noctuidae		rambutan
<i>Euchlora cupripes</i>	see <i>Anomala cupripes</i>			
<i>Euchrysops cneus</i> (Fabricius)	LEP	Lycaenidae	bean blue	legumes
<i>Eudocima salaminia</i> (Cramer)	LEP	Noctuidae	fruit piercing moth	citrus
<i>Euproctis</i> spp.	LEP	Lymantriidae	tussock moth	cashew
<i>Euproctis pseudoconspersa</i> Strand	LEP	Lymantriidae		tea
<i>Eurema hecate</i> (Linnaeus)	LEP	Pieridae	common grass yellow	corkwood tree
<i>Eurydema pulchra</i> (Westwood)	HEM	Pentatomidae	cabbage bug	
<i>Eutetranychus africanus</i> (Tucker)	ACA	Tetranychidae	harlequin bug	brassicas
<i>Eutetranychus cendanae</i>	see <i>Eotetranychus cendanai</i>		citrus brown mite	citrus, durian
<i>Eutetranychus orientalis</i> (Klein)	ACA	Tetranychidae		papaya, rambutan

\* Taxonomic identity unclear

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Euthalia aconthea</i> (Moore)	LEP	Nymphalidae		mango
<i>Eysarcoris guttiger</i> (Thunberg)	HEM	Pentatomidae	two spotted sesame bug	sesame
<i>Ferrisia virgata</i> (Cockerell)	HEM	Pseudococcidae	striped mealybug	polyphagous
<i>Ferrisia virgata</i>	see <i>Ferrisia virgata</i>			
<i>Frankliniella</i> spp.	THY	Thripidae		soybean, flowers
<i>Frankliniella occidentalis</i> (Pergande)	THY	Thripidae		rose, chrysanthemum
<i>Frankliniella williamsi</i> Hood	THY	Thripidae		maize, sugarcane
<i>Glyphodes caesalis</i> (Walker)	LEP	Pyralidae		jackfruit
<i>Glyphodes pulverulentalis</i> Hampson	LEP	Pyralidae		mulberry
<i>Gryllotalpa africana</i> (Palisot de Beauvois)	ORT	Gryllotalpidae	African mole cricket	potato
<i>Gryllotalpa orientalis</i> Burmeister	ORT	Gryllotalpidae	mole cricket	rice
<i>Gynaikothrips ficorum</i> (Marchal)	THY	Phlaeothripidae		figs
<i>Haplothrips floricola</i>	THY	Phlaeothripidae		curcubits
<i>Hedylepta diemenalis</i>	see <i>Lamprosema diemenalis</i>			
<i>Hedylepta indicata</i> (Fabricius)	LEP	Pyralidae	soybean webworm	legumes
<i>Hedythia suturalis</i>	see <i>Medythia suturalis</i>			
<i>Helicoverpa armigera</i> (Hübner)	LEP	Noctuidae	cotton bollworm	polyphagous
<i>Helicoverpa assulta</i> (Guenée)	LEP	Noctuidae	tobacco budworm	tobacco
<i>Heliothis</i> sp.	LEP	Noctuidae	army worm	chilli
<i>Heliothis armigera</i>	see <i>Helicoverpa armigera</i>			
<i>Heliothis assulta</i>	see <i>Helicoverpa assulta</i>			
<i>Heliothrips haemorrhoidalis</i> (Bouché)	THY	Thripidae	greenhouse thrips	avocado
<i>Hellula undalis</i> (Fabricius)	LEP	Pyralidae	oriental cabbage webworm	brassicas
<i>Helopeltis</i> sp.	HEM	Miridae		tea
<i>Helopeltis bradyi</i> Waterhouse	HEM	Miridae	tea mosquito	tea, cashew, cocoa, cinchona
<i>Helopeltis theivora</i> Waterhouse	HEM	Miridae	tea mosquito	tea, cashew, cocoa, cinchona
<i>Helopeltis theobromae</i> Miller	see <i>Helopeltis theivora</i>			
<i>Hemerophila atrilineata</i>	see <i>Menophra atrilineata</i>			
<i>Henosepilachna vigintioctopunctata</i>	see <i>Epilachna vigintioctopunctata</i>			
<i>Herse convolvuli</i>	see <i>Agrius convolvuli</i>			
<i>Heteropsylla cubana</i> Crawford	HEM	Psyllidae	leucaena psyllid	leucaena
<i>Hexarnitodera semivelutina</i> (Heller)	COL	Cerambycidae		clove
<i>Hidari irava</i> (Moore)	LEP	Hesperiidae	coconut skipper	coconut
<i>Hieroglyphus banian</i> (Fabricius)	ORT	Acridae		sugarcane
<i>Hippotion celerio</i> (Linnaeus)	LEP	Sphingidae		taro
<i>Hispa armigera</i>	see <i>Dicladispa armigera</i>			

Table 1 (continued)

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Holotrichia bidentata</i> (Burmeister)	COL	Scarabaeidae		rubber
<i>Holotrichia sinensis</i> Hope	COL	Scarabaeidae		sugarcane
<i>Homona coffearia</i> (Nietner)	LEP	Tortricidae		tea
<i>Hyblaea puera</i> (Cramer)	LEP	Hyblaeidae	tea tortrix	
<i>Hydrellia</i> sp.	DIP	Ephydriidae		teak
<i>Hydrellia philippina</i> Ferino	DIP	Ephydriidae	rice whorl maggot	rice
<i>Hymenia recurvalis</i>	see <i>Spoladea recurvalis</i>		rice whorl maggot	rice
<i>Hyperaeschrella dentata</i>	see <i>Hyperaeschrella insulicola</i>			
<i>Hyperaeschrella insulicola</i> Kiriakoff	LEP	Notodontidae		rambutan, cashew
<i>Hypomeces squamosus</i> (Fabricius)	COL	Curculionidae	green weevil	polyphagous
<i>Hyposidra talaca</i> (Walker)	LEP	Geometridae		mangosteen, cinchona
<i>Hypothenemus hampei</i> (Ferrari)	COL	Scolytidae	coffee berry borer	coffee
<i>Hypothenemus psidii</i> Hopkins	COL	Scolytidae		guava
<i>Hysteroneura setariae</i> (Thomas)	HEM	Aphididae	grass aphid	wheat
<i>Icerya pulchra</i> (Leonardi)	HEM	Margarodidae		durian
<i>Icerya purchasi</i> Maskell	HEM	Margarodidae	cottony cushion scale	citrus
<i>Icerya seychellarum</i> (Westwood)	HEM	Margarodidae		citrus
<i>Idiocerus clypealis</i>	see <i>Idioscopus clypealis</i>			
<i>Idiocerus niveosparsus*</i>	see <i>Idioscopus niveosparsus</i>			
<i>Idioscopus clypealis</i> (Lethierry)	HEM	Cicadellidae	mango leafhopper	mango
<i>Idioscopus nigroclypealis</i>	see <i>Idioscopus clypealis</i>			
<i>Idioscopus nitidulus</i> (Walker)	HEM	Cicadellidae		mango
<i>Idioscopus niveosparsus</i> (Lethierry)	HEM	Cicadellidae		mango
<i>Jacobiasca formosana</i> (Paoli)	HEM	Cicadellidae		castor, cassava
<i>Japanagromyza</i> sp. nr <i>angustifrons</i> Spencer	DIP	Agromyzidae		mung
<i>Japanagromyza tristella</i> (Thomson)	DIP	Agromyzidae		soybean
<i>Laccifer javanus</i>	see <i>Kerria javana</i>			
<i>Lampides boeticus</i> (Linnaeus)	LEP	Lycaenidae	pea blue butterfly	legumes
<i>Lamprosema diemenalis</i> (Guenée)	LEP	Pyralidae	bean leaf roller	legumes
<i>Lamprosema indicata</i>	see <i>Hedylepta indicata</i>			
<i>Latoia lepida</i>	see <i>Parasa lepida</i>			
<i>Lawana imitata</i> (Melichar)	HEM	Flatidae		clove
<i>Lepidiota bimaculata</i> Saunders	COL	Scarabaeidae		jackfruit
<i>Lepidiota discedens</i> Sharp	COL	Scarabaeidae		sugarcane
<i>Lepidiota stigma</i> (Fabricius)	COL	Scarabaeidae		sugarcane, cassava
<i>Lepidosaphes beckii</i> (Newman)	HEM	Diaspididae		
<i>Leptocoris acuta</i> (Thunberg)	HEM	Aleydidae	purple scale mussel scale paddy bug	citrus rice

\* *Idiocerus niveosparsus* may prove to be a synonym of *I. nitidulus*

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Leptocoris oratorius</i> (Fabricius)	HEM	Alydidae	rice ear bug	rice
<i>Leptocoris varicornis</i>	see <i>Leptocoris acuta</i>			
<i>Leptoglossus australis</i>	see <i>Leptoglossus gonagra</i>	Coreidae	squash bug	cucurbits, citrus
<i>Leptoglossus gonagra</i> (Fabricius)	HEM			
<i>Leptoglossus membranaceus</i>	see <i>Leptoglossus gonagra</i>			
<i>Leucania unipuncta</i>	see <i>Mythimna separata</i>			
<i>Leucinodes orbonalis</i> Guenée	LEP	Pyralidae	brinjal fruit borer	egg plant
<i>Leucopholis irrorata</i> (Chevrolat)	COL	Scarabaeidae		polyphagous
<i>Leucopholis rorida</i> (Fabricius)	COL	Scarabaeidae		cashew, rubber, cassava
<i>Lipaphis erysimi</i> (Kaltenbach)	HEM	Aphididae	turnip aphid	brassicas
<i>Liriomyza brassicae</i> (Riley)	DIP	Agromyzidae	cabbage leafminer	brassicas
<i>Lohita grandis</i> (Gray)	HEM	Pyrrhocoridae		tea, longan
<i>Longitarsis sacchari</i>	see <i>Melanaphis sacchari</i>			
<i>Lophobaris piperis</i> Marshall	COL	Curculionidae	pepper bark weevil	pepper
<i>Lymantria lunata</i> (Stoll)	LEP	Lymantriidae	tussock moth	carambola
<i>Lymantria monacha</i> (Linnaeus)	LEP	Lymantriidae	tussock moth	guava
<i>Lyonetia</i> sp	LEP	Lyonetiidae		brassicas
<i>Macroceroea grandis</i>	see <i>Lohita grandis</i>			
<i>Macrotermes</i> spp.	ISO	Termitidae		bamboo, tea, sugarcane
<i>Macrotermes gilvus</i> (Hagen)	ISO	Termitidae		bamboo
<i>Mahasena corbetti</i> Tams	LEP	Psychidae	coconut case caterpillar	oil palm
<i>Margaronia bivatalis</i>	see <i>Glyphodes bivatalis</i>			
<i>Margaronia indica</i>	see <i>Diaphania indica</i>			
<i>Margaronia pulverulentalis</i>	see <i>Glyphodes pulverulentalis</i>			
<i>Maruca amboinalis</i> (Felder and Rogenhofer)	LEP	Pyralidae		mung
<i>Maruca testulalis</i> (Geyer)	LEP	Pyralidae	legume pod borer	legumes
<i>Medythia suturalis</i> (Motschulsky)	COL	Chrysomelidae		mung, cowpea
<i>Megalothrips usitatus</i> (Bagnall)	THY	Thripidae		mung, groundnut, soybean
<i>Megymenum brevicornis</i> (Fabricius)	HEM	Dinidoridae		egg plant, cucumber
<i>Melanagromyza phaseoli</i>	see <i>Ophiomyia phaseoli</i>			
<i>Melanagromyza sojae</i> (Zehntner)	DIP	Agromyzidae	soybean stem miner	soybean, mung
<i>Melanaphis sacchari</i> (Zehntner)	HEM	Aphididae	yellow sugarcane aphid	maize, sorghum
<i>Menopatra atrilineata</i> (Butler)	see <i>Phthorardria atrilineata</i>			
<i>Meridarchis scyrodes</i> Meyrick	LEP	Carposinidae		jujuba
<i>Metanastria hyrtaca</i> (Cramer)	LEP	Lasiocampidae		cashew, quinine
<i>Metatetranychus bioculatus</i>	see <i>Oligonychus coffeae</i>			
<i>Metisa plana</i> Walker	LEP	Psychidae		oil palm

Table 1 (continued)

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Microtermes pakستانicus</i> Ahmad	ISO	Termitidae		tea
<i>Microtermes pallidus</i>	see <i>Microtermes pakستانicus</i>			
<i>Mictis longicornis</i> Westwood	HEM	Coreidae		mango
<i>Monolepta signata</i> (Olivier)	COL	Chrysomelidae		groundnut
<i>Mudaria magniplaga</i> (Walker)	LEP	Noctuidae	fruit borer	durian
<i>Mudaria variabilis</i> Roepke	LEP	Noctuidae	kapok pod moth	kapok
<i>Mycterothrips setiventris</i> (Bagnall)	THY	Thripidae		tea
<i>Mylabris phalerata</i> (Pallas)	COL	Meloidae	yellow-banded blister beetle	groundnut, hemp
<i>Mythimna</i> sp.	LEP	Noctuidae	cutworm	maize
<i>Mythimna separata</i> (Walker)	LEP	Noctuidae	paddy armyworm	rice, maize, sorghum
<i>Mythimna venalba</i> (Moore)	LEP	Noctuidae		rice
<i>Myzus persicae</i> (Sulzer)	HEM	Aphididae	peach aphid	tobacco, tomato, potato
<i>Naranga aenescens</i> Moore	LEP	Noctuidae	green rice semilooper	rice
<i>Neostauropus alternus</i> (Walker)	LEP	Notodontidae		acacia
<i>Nephopterix piratis</i> Meyrick	LEP	Pyralidae		cashew, ciku
<i>Nephrotettix</i> spp.	HEM	Cicadellidae		rice
<i>Nephrotettix apicalis</i>	see <i>Nephrotettix nigropictus</i>			
<i>Nephrotettix bipunctata</i>	see <i>Nephrotettix virescens</i>			
<i>Nephrotettix impicticeps</i>	see <i>Nephrotettix virescens</i>			
<i>Nephrotettix nigropictus</i> (Stål)	HEM	Cicadellidae	rice leafhopper	rice
<i>Nephrotettix virescens</i> (Distant)	HEM	Cicadellidae	green leafhopper (GLH)	rice
<i>Nezara viridula</i> (Linnaeus)	HEM	Pentatomidae	green vegetable bug	polyphagous
<i>Nilaparvata lugens</i> (Stål)	HEM	Delphacidae	brown planthopper (BPH)	rice
<i>Nipaecoccus nipae</i> (Maskell)	HEM	Pseudococcidae	spike mealybug	coconut
<i>Niphonoclea</i> spp.	COL	Cerambycidae		avocado
<i>Niphonoclea albata</i> (Newman)	COL	Cerambycidae	twig borer	mango, cocoa
<i>Niphonoclea capito</i> (Pascoe)	COL	Cerambycidae	mango twig borer	mango
<i>Nodostoma viridipenne</i>	see <i>Basilepta viridipenne</i>			
<i>Nomadacris succincta</i> (Linnaeus)	ORT	Acrididae	Bombay locust	maize
<i>Noorda albizonalis</i> Hampson	LEP	Pyralidae	red banded borer	mango
<i>Nothopeus fasciatipennis</i> Waterhouse	COL	Cerambycidae	clove stem borer	clove
<i>Nymphula depunctalis</i>	see <i>Paraponyx stagnalis</i>			
<i>Nysius</i> sp.	HEM	Lygaeidae		sesame
<i>Odoiporus longicollis</i> (Olivier)	COL	Curculionidae	banana stem weevil	banana
<i>Odontotermes</i> sp.	ISO	Termitidae		groundnut
<i>Oebia undalis</i>	see <i>Hellula undalis</i>			
<i>Olene mendosa</i> Hübner	LEP	Lymantriidae		castor, groundnut
<i>Olenecamptus bilobus</i> (Fabricius)	COL	Cerambycidae	mango, fig	

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Olethreutes discana</i>	see <i>Statherotis discana</i>	Tetranychidae	tea red spider mite	tea, cassava
<i>Oligonychus coffeae</i> (Nietner)	ACA	Tetranychidae	mango red spider mite	mango
<i>Oligonychus mangiferus</i> (Rahman and Sapra)	ACA	Pyralidae	sweet potato stem borer	sweet potato
<i>Omphisa anastomosalis</i> (Guenée)	LEP	Agromyzidae	bean fly	legumes
<i>Ophiomyia phaseoli</i> (Tryon)	DIP	Noctuidae	fruit piercing moth	citrus
<i>Ophiusa coronata</i> (Fabricius)	LEP			
<i>Ophiusa janata</i>	see <i>Achaea janata</i>	Noctuidae	fruit piercing moth	citrus
<i>Ophiusa tirhaca</i>	LEP			
<i>Oregma lanigera</i>	see <i>Ceratovacuna lanigera</i>	Lymantriidae		polyphagous
<i>Orgyia postica</i> (Walker)	LEP	Lymantriidae		durian, groundnut, cocoa, coconut
<i>Orgyia turbata</i> Butler	LEP			
<i>Orosius albicinctus</i>	see <i>Orosius orientalis</i>	Cicadellidae	sesame jassid	sesame
<i>Orosius orientalis</i> (Matsumura)	HEM	Cecidomyiidae	rice gall midge	rice
<i>Orseolia oryzae</i> (Wood-Mason)	DIP			
<i>Orthocraspeda trima</i>	see <i>Darna trima</i>	Scarabaeidae	rhinoceros beetle	coconut, oil palm
<i>Oryctes rhinoceros</i> (Linnaeus)	COL	Silvanidae	saw toothed grain beetle	nutmeg, stored products
<i>Oryzaephilus surinamensis</i> (Linnaeus)	COL	Pyralidae	Asian corn borer	maize, sorghum
<i>Ostrinia furnacalis</i> (Guenée)	LEP	Pyralidae	European corn borer	maize
<i>Ostrinia nubilalis</i> (Hübner)	LEP	Noctuidae	fruit piercing moth	many fruits
<i>Othreis fullonia</i> (Clerck)	LEP	Acrididae	rice field grasshopper	rice
<i>Oxya</i> spp.	ORT	Noctuidae		rambutan, durian
<i>Oxyodes scrobiculata</i> (Fabricius)	LEP			
<i>Pachydiplosis oryzae</i>	see <i>Orseolia oryzae</i>			
<i>Palpita indica</i>	see <i>Diaphania indica</i>			
<i>Papilio demodocus</i>	see <i>Papilio demoleus</i>			
<i>Papilio demoleus</i> Linnaeus	LEP	Papilionidae	lime butterfly	citrus
<i>Papilio polytes</i> Linnaeus	LEP	Papilionidae	common mormon	citrus
<i>Parabemisia myricae</i> (Kuwana)	HEM	Aleyrodidae		cucurbits, tomato
<i>Paraponyx stagnalis</i> Zeller	LEP	Pyralidae	rice case bearer	rice
<i>Parasa lepida</i> (Cramer)	LEP	Limacodidae	blue-striped nettle grub	mango, tea, coconut, rubber, cassava
<i>Parasaissetia nigra</i> (Nietner)	HEM	Coccidae		rubber, cassava
<i>Pareba vesta</i>	see <i>Acraea issoria</i>			
<i>Parlatoria ziziphi</i> (Lucas)	HEM	Diaspididae	leaf black scale	citrus
<i>Parnara guttatus</i> (Bremer and Grey)	LEP	Hesperiidae	rice skipper	rice
<i>Patanga succincta</i>	see <i>Nomadacris succincta</i>	Gelechiidae		
<i>Pectinophora gossypiella</i> (Saunders)	LEP		pink bollworm	cotton

Table 1 (continued)

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Pentalonia nigronervosa</i> Coquerel	HEM	Aphididae	banana aphid	banana
<i>Phaenacantha saccharicida</i> (Karsch)	HEM	Colobathristidae	sugarcane bug	sugarcane
<i>Phenacaspis papayae</i> Takahashi	HEM	Diaspididae		papaya
<i>Phenacoccus iceryoides</i>	see <i>Rastrococcus iceryoides</i>			
<i>Philosamia cynthia</i>	see <i>Samia cynthia</i>			
<i>Phragmataecia castaneae</i> (Hübner)	LEP	Cossidae		
<i>Pthorardria atrilineata</i> (Butler)	LEP	Geometridae		
<i>Pthorimaea heliopa</i>	see <i>Scrobipalpa heliopa</i>	Gelechiidae		sugarcane
<i>Pthorimaea operculella</i> (Zeller)	LEP	Phyllocnistidae		mulberry
<i>Phyllocoptis citrella</i> Stainton	LEP	Eriophyidae		
<i>Phyllocoptura oleivora</i> (Ashmead)	ACA	Chrysomelidae		
<i>Phyllotreta</i> sp.	COL	Chrysomelidae		
<i>Phyllotreta chotanica</i> Duvivier	COL	Chrysomelidae		
<i>Phyllotreta cruciferae</i> (Goeze)	COL	Chrysomelidae		
<i>Phyllotreta flexuosa</i> (Illiger)	COL	Chrysomelidae		
<i>Phyllotreta sinuata</i> Redtenbacher	see <i>Phyllotreta vittata</i>	Chrysomelidae		
<i>Phyllotreta sinuata</i> (Stephens)	see <i>Phyllotreta flexuosa</i>	Chrysomelidae		
<i>Phyllotreta striolata</i> (Fabricius)	COL	cabbage flea beetle		
<i>Phyllotreta vittata</i> (Fabricius)	COL	Chrysomelidae		
<i>Phytometra signata</i>	see <i>Argyrogramma signata</i>	Pieridae		
<i>Phytomyza atricornis</i>	see <i>Chromatomyia horticola</i> or <i>C. syngenesiae</i>	Pieridae		
<i>Pieris canidia</i> (Sparrman)	LEP	Pieridae	small cabbage butterfly	
<i>Pieris rapae</i> (Linnaeus)	LEP	Pieridae	cabbage white butterfly	
<i>Piezodorus hybneri</i> (Gmelin)	HEM	Pentatomidae	red banded shield bug	legumes
<i>Piezodorus rubrofasciatus</i>	see <i>Piezodorus hybneri</i>			
<i>Pinnaspis aspidistrae</i> (Signoret).	HEM	Diaspididae		pepper
<i>Plagideicta</i> sp.	see <i>Mudaria</i> sp.	Pseudococcidae		
<i>Planococcus citri</i> (Risso)	HEM		citrus mealybug	citrus, custard apple, rambutan
<i>Planococcus hispidus</i>	see <i>Cataenococcus hispidus</i>	Curculionidae		
<i>Platymycteris sieversi</i> Reitter	COL			
<i>Plesispa reichei</i> Chapuis	COL	Chrysomelidae	coconut hispid	groundnut, soybean, mulberry
<i>Plocaederus ferrugineus</i> (Linnaeus)	COL	Cerambycidae	coconut	coconut
<i>Plocaederus fulvicomis</i> (Guérin-Méneville)	COL	Cerambycidae	cashew	cashew
<i>Plocaederus obesus</i> Gahan	COL	Cerambycidae	mango	mango
<i>Plocaederus pedestris</i> (White)	COL	Cerambycidae	cashew stem borer	cashew
				mango

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Ploneta diducta</i>	see <i>Darna diducta</i>			
<i>Plusia chalcites</i>	see <i>Chrysodeixis eriosoma</i>			
<i>Plusia eriosoma</i>	see <i>Chrysodeixis eriosoma</i>			
<i>Plusia signata</i>	see <i>Argyrogramma signata</i>			
<i>Plutella xylostella</i> (Linnaeus)	LEP	Yponomeutidae	diamondback moth	brassicas
<i>Poecilocoris latus</i> Dallas	HEM	Scutelleridae	tea shield bug	tea
<i>Polyphagotarsonemus latus</i> (Banks)	ACA	Tarsonemidae	broad mite, yellow tea mite	cotton, chilli, legumes
<i>Porthesia scintillans</i> Walker	LEP	Lymantriidae		corkwood, carambola, rambutan
<i>Prays endocarpa</i> Meyrick	LEP	Yponomeutidae		citrus
<i>Proceras infuscatellus</i>	see <i>Chilo infuscatellus</i>			
<i>Proceras venosatus</i>	see <i>Chilo sacchariphagus</i>			
<i>Promecotheca cumingii</i> Baly	COL	Chrysomelidae		oil palm
<i>Pseudaletia separata</i>	see <i>Mythimna separata</i>	Diaspididae		mulberry
<i>Pseudaulacaspis pentagona</i> (Targioni Tozzetti)	HEM	Pseudoccidae		potato, coffee
<i>Pseudococcus</i> sp.	HEM	Stratiomyiidae		
<i>Pseudococcus citri</i>	see <i>Planococcus citri</i>	Cerambycidae		citrus
<i>Pseudococcus nipae</i>	see <i>Nipaecoccus nipae</i>			carambola
<i>Ptecticus cingulatus</i> Loew	DIP	Cecidomyiidae		
<i>Pterolophia bigibbera</i> Newman	COL	Lycenidae		mango
<i>Pyrameis indica</i>	see <i>Vanessa indica</i>	Pseudoccidae		rambutan
<i>Pyrausta nubilalis</i>	see <i>Ostrinia nubilalis</i>	Cicadellidae		cocoa
<i>Raodiplosis orientalis</i> Felt	DIP	Chrysomelidae		mango
<i>Rapala pheretima</i> (Hewitson)	LEP			rice
<i>Rastrococcus iceryoides</i> (Green)	HEM			cucurbits
<i>Rastrococcus spinosus</i> (Robinson)	HEM	Thripidae	zigzag leafhopper	
<i>Recilia dorsalis</i> (Motschulsky)	HEM	Aphididae		
<i>Rhaphidopalpa</i> sp. poss. <i>chinensis</i> Weise	COL	Aphididae		
<i>Rhaphidopalpa similis</i>	see <i>Aulacophora similis</i>	Pentatomidae		
<i>Rhipiphorothrips cruentatus</i> Hood	THY	Curculionidae		
<i>Rhopalosiphum maidis</i> (Fitch)	HEM	Curculionidae	maize aphid	cashew
<i>Rhopalosiphum padi</i> (Linnaeus)	HEM	Curculionidae	oat aphid, wheat aphid	maize, sorghum
<i>Rhynchocoris poseidon</i>	HEM	Pentatomidae	spined fruit bug	maize
<i>Rhynchocoris serratus</i> Donovan	see <i>Rhynchocoris poseidon</i>			citrus
<i>Rhynchophorus ferrugineus</i> (Olivier)	COL			
<i>Rhynchophorus schach</i> (Fabricius)	COL			
<i>Rhynchophorus vulneratus</i> (Panzer)	COL			
<i>Rhyncocoris serratus</i> Donovan	HEM	Pentatomidae		
			Asiatic palm weevil	coconut
			red stripe weevil	coconut
			Asiatic palm weevil	coconut
				citrus

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Rhytidodera simulans</i> (White)	COL	Cerambycidae	mango branch borer	mango
<i>Riptortus</i> spp.	HEM	Alydidae		legumes
<i>Rivula atimeta</i> (Swinhoe)	LEP	Noctuidae		rice
<i>Saccharicoccus sacchari</i> (Cockerell)	HEM	Pseudococcidae	sugarcane mealybug	sugarcane
<i>Saissetia coffeae</i> (Walker)	HEM	Coccidae		coffee
<i>Saissetia nigra</i>	see <i>Parasaissetia nigra</i>			
<i>Schoenobius bipunctifer</i>	see <i>Scirpophaga incertulas</i>			
<i>Scirpophaga excerptalis</i> (Walker)	LEP	Pyralidae		mango
<i>Scirpophaga incertulas</i> (Walker)	LEP	Pyralidae	yellow rice stemborer	rice
<i>Scirpophaga innotata</i> (Walker)	LEP	Pyralidae	white rice stemborer	rice
<i>Scirpophaga monostigma</i>	see <i>Scirpophaga excerptalis</i>			
<i>Scirpophaga nivella</i> (Fabricius)	LEP	Pyralidae	sugarcane top borer	sugarcane, rice
<i>Scirtothrips dorsalis</i> Hood	THY	Thripidae	chilli thrips	chilli, cotton, citrus, tea, groundnut
<i>Scopelodes anthela</i> Swinhoe	LEP	Limacodidae		banana
<i>Scopelodes testacea</i> Butler	LEP	Limacodidae		banana
<i>Scotinophara</i> sp.	HEM	Pentatomidae		rice
<i>Scotinophara cinerea</i> (Le Guillou)	HEM	Pentatomidae		rice
<i>Scotinophara coarctata</i> (Fabricius)	HEM	Pentatomidae		rice
<i>Scotinophara vermiculata</i>	see <i>Scotinophora cinerea</i>			
<i>Scrobipalpa heliopa</i> (Lower)	LEP	Gelechiidae	tobacco stemborer	tobacco
<i>Sepiomus</i> sp.	COL	Curculionidae		sugarcane
<i>Sesamia</i> sp.	LEP	Noctuidae		sugarcane
<i>Sesamia inferens</i> (Walker)	LEP	Noctuidae	pink rice borer	rice, sorghum, sugarcane, maize
<i>Setora nitens</i> Walker	LEP	Limacodidae	coconut nettle caterpillar	coconut, cinchona
<i>Sexava</i> spp.	ORT	Acrididae		coconut, cinchona
<i>Sogatella furcifera</i> (Horváth)	HEM	Delphacidae	white backed planthopper (WBPH)	rice
<i>Spodoptera</i> spp.	LEP	Noctuidae		maize
<i>Spodoptera exempta</i> (Walker)	LEP	Noctuidae	black armyworm	ginger
<i>Spodoptera exigua</i> (Hübner)	LEP	Noctuidae	lesser armyworm	cotton, brassicas etc
<i>Spodoptera litura</i> (Fabricius)	LEP	Noctuidae	cluster caterpillar	polyphagous
<i>Spodoptera mauritia</i> (Boisduval)	LEP	Noctuidae	rice cutworm	rice
<i>Spoladea recurvalis</i> (Fabricius)	LEP	Pyralidae	rice armyworm	groundnut, watermelon
<i>Statherotis discana</i> (Felder & Rogenhofer)	LEP	Tortricidae		longan

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Staurops alternus</i>	see <i>Neostauropus alternus</i>			
<i>Stenachroia elongella</i> Hampson	LEP	Pyralidae		sorghum
<i>Stenchaetothrips biformis</i> (Bagnall)	THY	Thripidae	rice trhips	rice
<i>Stephanitis typica</i> (Distant)	HEM	Tingidae		banana
<i>Stephanoderes hampei</i>	see <i>Hypothenemus hampei</i>			
<i>Stephanoderes psidii</i>	see <i>Hypothenemus psidii</i>			
<i>Sternochetus frigidus</i> (Fabricius)	COL	Curculionidae	mango weevil	mango
<i>Sternochetus goniocnemis</i> (Marshall)	COL	Curculionidae	mango	mango
<i>Sternochetus mangiferae</i> (Fabricius)	COL	Curculionidae	mango	mango
<i>Stibaropus molginus</i> (Schiödte)	HEM	Cydniidae	tobacco	tobacco
<i>Stomopteryx subsecivella</i>	see <i>Aproaerema modicella</i>			
<i>Susunai exigua</i>	see <i>Spodoptera exigua</i>			
<i>Sylepte derogata</i> (Fabricius)	LEP	Pyralidae	cotton leaf roller	cotton
<i>Taeniothrips</i> sp.	THY	Thripidae		cucurbits
<i>Taiwania circumdata</i> (Herbst)	COL	Chrysomelidae		sweet potato
<i>Tarophagus colocasiae</i> (Matsumura)*	HEM	Delphacidae	taro planthopper	taro
<i>Tarophagus proserpina</i>	see <i>Tarophagus colocasiae</i>			
<i>Tenaphalara malayensis</i>	see <i>Allocarsidara malayensis</i>			
<i>Tessaratoma javanica</i> (Thunberg)	HEM	Tessaratomidae		longan
<i>Tessaratoma papillosa</i> (Drury)	HEM	Tessaratomidae	litchi	litchi
<i>Tetramoera schistaceana</i> (Snellen)	LEP	Tortricidae		sugarcane
<i>Tetranychus</i> spp.	ACA	Tetranychidae		cotton, cucurbits
<i>Tetranychus cinnabarinus</i> (Boisduval)	ACA	Tetranychidae		papaya
<i>Tetranychus hydrangeae</i> Pritchard and Baker	ACA	Tetranychidae		sweet potato
<i>Tetranychus kanzawai</i> Kishida	ACA	Tetranychidae		groundnut, soybean
<i>Tetranychus pierci</i> McGregor	ACA	Tetranychidae		groundnut
<i>Tetranychus telarius</i>	see <i>Tetranychus urticae</i>			
<i>Tetranychus truncatus</i> Ehara	ACA	Tetranychidae		castor, cassava
<i>Tetranychus urticae</i> Koch	ACA	Tetranychidae		cassava, legumes
<i>Thosea</i> spp.	LEP	Limacodidae	two spotted mite	mango, coconut
<i>Thosea biguttata</i>	see <i>Thosea vetusta</i>			
<i>Thosea sinensis</i> (Walker)	LEP	Limacodidae		coconut, citrus, quinine
<i>Thosea vetusta</i> (Walker)	LEP	Limacodidae		coconut
<i>Thrips flavus</i> Schrank	THY	Thripidae		egg plant, mustard, cotton
<i>Thrips hawaiiensis</i> (Morgan)	THY	Thripidae		okra, maize
<i>Thrips palmi</i> Karny	THY	Thripidae		cotton, solanaceae, cucurbits, legumes
<i>Thrips parvispinus</i> (Karny)	THY	Thripidae		papaya, watermelon

\* Unclear whether it is this species or *T. persephone* (Kirkaldy) or a mixture

Table 1 (continued)

Table 1 (continued)

Scientific Name	Order	Family	English Common Name	Principal Crops Attacked
<i>Thrips tabaci</i> Lindeman	THY	Thripidae	onion thrips	onion, potato, cotton etc
<i>Tiracola plagiata</i> (Walker)	LEP	Noctuidae	plague caterpillar	capsicum, rubber
<i>Tirathaba</i> spp.	LEP	Pyralidae		coconut
<i>Tirathaba mundella</i> (Walker)	LEP	Pyralidae		rambutan, oil palm
<i>Tirathaba rufivena</i> (Walker)	LEP	Pyralidae		coconut
<i>Toxoptera aurantii</i> Boyer de Fonscolombe	HEM	Aphididae		citrus, coffee, tea, cocoa
<i>Toxoptera bradyi</i>	see <i>Toxoptera aurantii</i>			
<i>Toxoptera citricidus</i> (Kirkaldy)	HEM	Aphididae	brown citrus aphid	citrus
<i>Trialeurodes ricini</i> (Misra)	HEM	Aleyrodidae	castor whitefly	castor
<i>Trichoplusia ni</i> (Hübner)	LEP	Noctuidae	cabbage semi-looper	brassicas
<i>Tryonymus sacchari</i>	see <i>Saccharicoccus sacchari</i>			
<i>Tryporyza incertulas</i>	see <i>Scirpophaga incertulas</i>			
<i>Tryporyza innotata</i>	see <i>Scirpophaga innotata</i>			
<i>Tryporyza nivella</i>	see <i>Scirpophaga nivella</i>			
<i>Urentius hystericellus</i> (Richter)	HEM	Tingidae		
<i>Utetheisa pulchelloides</i> Hampson	LEP	Arctiidae		eggplant, tomato
<i>Valanga nigricornis</i> (Burmeister)	ORT	Acrididae		hemp
<i>Vanessa indica</i> (Herbst)	LEP	Nymphalidae		maize
<i>Xanthodes transversa</i> Guenée	LEP	Noctuidae		ramie
<i>Xylaphothrips</i> sp.	THY	Phlaeothripidae		okra
<i>Xyleborus</i> sp.	COL	Scolytidae		cocoa
<i>Xyleborus apertus</i> Schedl	COL	Scolytodae		cocoa
<i>Xyleborus fornicatus</i> Eichoff	COL	Scolytidae	trunk borer	durian
<i>Xyleborus morstatti</i>	see <i>Xylosandrus compactus</i>			tea
<i>Xyleutes ceramicus</i> Walker	LEP	Cossidae		teak
<i>Xylosandrus compactus</i> (Eichoff)	COL	Scolytidae	black coffee twig borer	coffee, cocoa, tea
<i>Xylotrechus quadripes</i> Chevrolat	COL	Cerambycidae		coffee
<i>Xylotrupes gideon</i> (Linnaeus)	COL	Scarabaeidae	coffee stem borer	coconut
<i>Zeuxippa catoxantha</i> (Hampson)	see <i>Artona catoxantha</i>			
<i>Zeuzera coffeae</i> Nietner	LEP	Cossidae	red branch borer	coffee, cocoa

Table 2

The distribution and importance of major Southeast Asian arthropod pests (450 species).

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Acanthocoris scaber</i>					++	•	•		•	
<i>Acanthoscelides obtectus</i>	+	•				•				
<i>Aceria litchi</i>		+								
<i>Aceria mangiferae</i>	++									
<i>Aceria tulipae</i>		+			+++					++
<i>Achaea janata</i>	+	++	+	++	+	+			•	
<i>Achaea serva</i>			+			•			•	
<i>Acherontia lachesis</i>	•	+	+	+	+	•		•		
<i>Acherontia styx</i>	•	+	+	+	•	•		•		
<i>Acraea issoria</i>					+					
<i>Acrocercops symbolopis</i>		+								
<i>Acrocercops syngamma</i>		+							•	
<i>Adoretus compressus</i>	•				+	+	+	•	+	
<i>Adoretus sinicus</i>	+				++	+				
<i>Adoxophyes privatana</i>					•	•	+		•	
<i>Agrius convolvuli</i>	•	+		+	++	+		•	++	
<i>Agrotis ipsilon</i>	+	+		+	+	++	+		++	
<i>Agrotis segetum</i>	+				•	•			•	
<i>Alcidodes sp.</i>	•							+++		
<i>Alcidodes leeuweni</i>								++	++	
<i>Aleurodicus destructor</i>		+			+	+	+		+	
<i>Aleurodicus dispersus</i>	++	+++	++		+++	+++	+	+++	++	+++
<i>Aleurolobus barodensis</i>	•	+							•	
<i>Alissonotum impressicolle</i>	•	+			++				•	
<i>Allocarsidara malayensis</i>		++				++	+		•	
<i>Amathusia phidippus</i>	+				+	+	•	•		
<i>Amorphoidea lata</i>										+
<i>Amrasca sp.</i>	+					•			+++	
<i>Amrasca devastans</i>	+++	++	+		+++				+++	+++
<i>Amritodus atkinsoni</i>	++	+++								
<i>Amsacta lactinea</i>	•	•	•		+	•		•		
<i>Anomala spp.</i>	+++				++					++
<i>Anomala antiqua</i>	+++	+			+	•			+	
<i>Anomala cupripes</i>	+				+	+	+			

Table 2 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Anomala pallida</i>		•				+	+		•	
<i>Anomala varians</i>	++									
<i>Anomis flava</i>	•	+		+	+++	++			•	++
<i>Anoplophora chinensis</i>					++					
<i>Antigastra catalaunalis</i>	•	+							+	
<i>Aonidomytilus albus</i>		+								
<i>Aphis craccivora</i>	+	+	+	+	+++	+	+	++	+	++
<i>Aphis glycines</i>		+			++				•	
<i>Aphis gossypii</i>	++	+++	+	++	++	++	+	+	++	+++
<i>Apion collare</i>										
<i>Apion corchori</i>	++									
<i>Apoderus crenatus</i>		++								
<i>Apoderus notatus</i>		++			++					
<i>Apogonia</i> sp.										
<i>Apogonia cribicollis</i>						•	+			
<i>Apriona germari</i>			+		+					
<i>Aproaerema modicella</i>	++	+	++	+++		+			+	+
<i>Araecerus fasciculatus</i>		+				+	+		+	++
<i>Arbela dea</i>					+					
<i>Archips machlopis</i>						+				
<i>Archips micaceanus</i>	•	+	++		++	+	+			
<i>Archips tabescens</i>						+				
<i>Argyrogramma signata</i>	+		+			•			•	•
<i>Ariadne ariadne</i>					++					
<i>Artona catoxantha</i>	+		•		•	++	•		++	
<i>Asota</i> spp.						•			+	
<i>Aspidiottus destructor</i>	•	+		+	+	+	+	•	+	+
<i>Aspidomorpha furcata</i>				•	+		+			
<i>Aspidomorpha miliaris</i>	+				++	•				
<i>Asterolecanium unguatum</i>						•		•		
<i>Atherigona exigua</i>						•				
<i>Atherigona oryzae</i>	•					•				
<i>Atherigona soccata</i>	•	++			++					
<i>Attacus atlas</i>		+		+		+	+	•	+	
<i>Aulacaspis tegulensis</i>		+			+					
<i>Aulacaspis tuberculatus</i>					++					

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Aulacophora femoralis</i>	+				++					
<i>Aulacophora flavomarginata</i>						++		+	•	
<i>Aulacophora foveicollis</i>	+	+	+			++				
<i>Aulacophora frontalis</i>		+	+		+	+	+			
<i>Aulacophora lewisii</i>					+	+				
<i>Aulacophora similis</i>	+	+	+		+++	+		+	++	
<i>Bachytrupes</i> sp.					++	•				
<i>Bactrocera cucurbitae</i>	+	+++	++	+++	+++	+++	+	+++	+++	+++
<i>Bactrocera dorsalis</i> *	++	+++	++	++	+++	+++	++	+++	+++	+++
<i>Bactrocera latifrons</i>						++		++		+
<i>Bactrocera tau</i>	+		•			++	+	++		
<i>Bactrocera umbrosa</i>	+					++	+	++	+	++
<i>Basilepta subcostatum</i>						++				
<i>Basilepta viridipenne</i>		+								
<i>Batocera hercules</i>									+	
<i>Batocera rubus</i>			+			+		•	•	++
<i>Batocera rufomaculata</i>	+	+								
<i>Bedellia somnulentella</i>			+							
<i>Bemisia</i> sp.						+				
<i>Bemisia tabaci</i>	•	+++				+	+++	++		
<i>Bostrychopsis parallela</i>										++
<i>Brachmia trianuella</i>						+				
<i>Brachyacma palpigera</i>						+				
<i>Brevicoryne brassicae</i>			+			+++				++
<i>Bruchophagus mutabilis</i>						+++				
<i>Caliothrips indicus</i>			+							
<i>Calliteara horsfieldii</i>		•						•		
<i>Callitettix versicolor</i>	•	+		•	•	•				
<i>Callosobruchus</i> spp.	++					++				
<i>Callosobruchus chinensis</i>	+	+				++	+	•		
<i>Carpophilus hemipterus</i>	+					++	•	•		
<i>Cataenococcus hispidus</i>	+					+				
<i>Cephonodes hylas</i>			•		•	+	+			
<i>Ceratovacuna lanigera</i>	•	+			++	+		•		
<i>Ceresium sinicum</i>						+				
<i>Ceroplastes rubens</i>	+				+	+				

\* Includes at least 4 closely related species

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Chelidonium</i> sp.		+								
<i>Chelidonium argentatum</i>					++		+			
<i>Chilo</i> spp.	•				++				++	
<i>Chilo auricilius</i>	•	•			+				++	
<i>Chilo infuscatellus</i>	•	+	+	++	•				++	++
<i>Chilo polychrysus</i>	•	+	+	++	+	+			+	++
<i>Chilo sacchariphagus</i>		+	+	+	+++	++	+	•	+	
<i>Chilo suppressalis</i>	•	+	+	+	++	+		+	++	++
<i>Chionaspis papayae</i>		++							+	
<i>Chlorophorus annularis</i>					•	•		•	•	++
<i>Chlumetia transversa</i>	•	++				++	+		++	+
<i>Chondracris rosea</i>					+	•				
<i>Chromatomyia horticola</i>						++				
<i>Chrysodeixis eriosoma</i>	•	•		+	+	+		•	•	++
<i>Chrysomphalus aonidum</i>	+	+			+	•				
<i>Citripestis sagittiferella</i>						++	+	+	+	
<i>Cnaphalocrocis medinalis</i>	+	•	•	++	+++	++	•	++	++	++
<i>Coccus viridis</i>	•	+	•	+	++	•	+	•	++	
<i>Colasposoma dauricum</i>					+					
<i>Conogethes punctiferalis</i>	•	+	+	+++	+++	++		•	+	++
<i>Conopomorpha cramerella</i>						++			+	++
<i>Conopomorpha sinensis</i>										
<i>Coptosoma japonicum</i>					+					
<i>Coptotermes curvignathus</i>						++		•	+	
<i>Coptotermes havilandi</i>						•		•	+	
<i>Coridius fuscus</i>	•		•		++	•	•		•	
<i>Cosmopolites sordidus</i>	?	+		•	+++	++	+	++	++	++
<i>Cossus</i> sp.		+				•	•			
<i>Crematopsyche pendula</i>						+	+			
<i>Cricula trifenestrata</i>	•	+		+	•				++	
<i>Crocidolomia pavonana</i>	+	+		+		+		+++	++	
<i>Cryptophlebia</i> sp.						++				
<i>Cryptophlebia encarpa</i>						+				
<i>Cryptothlea variegata</i>						•				
<i>Cylas formicarius</i>	•	+++	++	+++	++	++	+	+++	+++	+++
<i>Cyrtacanthacris tatarica</i>					+					

Table 2 (continued)

Table 2 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Cyrtopeltis tenuis</i>	•				+					
<i>Darna diducta</i>		+				+			•	•
<i>Darna furva</i>		+								
<i>Darna trima</i>		++				+			+	
<i>Dasyus piperis</i>						+		•	++	
<i>Delia antiqua</i>										++
<i>Deporaus marginatus</i>	++	++				+	+			
<i>Diacrotricha fasciola</i>						+				
<i>Diaphania indica</i>		+	•	+	++	+	+	+	•	
<i>Diaphorina citri</i>	•	•			++	+	+		++	++
<i>Dichocrocis megillalis</i>										
<i>Dicladispa armigera</i>	+	•	•	•	+	•			•	
<i>Diconocoris hewitti</i>								•		++
<i>Diconocoris nepalensis</i>			+			++				
<i>Dorylus orientalis</i>	•	+								
<i>Dorysthenes buquetii</i>		+								
<i>Dysdercus cingulatus</i>	+	+	+	+	++	+	+	•	++	++
<i>Dysmicoccus brevipes</i>				+	++	++		•		++
<i>Dysmicoccus neobrevipes</i>		+								
<i>Earias vittella</i>	++	++	+	+	++	++	+	++	++	
<i>Elymnias hypermnestra</i>		•			+	•		•		
<i>Empoasca sp.</i>	++			+++		+	+			
<i>Empoasca flavescens</i>	+	•			+++	+				++
<i>Eotetranychus cendanai</i>		+++								
<i>Epepeotes uncinatus</i>	+									
<i>Epeorus cautella</i>		•								
<i>Epicauta gorhami</i>					+					
<i>Epicauta maklini</i>		+								
<i>Epicauta waterhousei</i>		+								
<i>Epilachna diffinis</i>								+		
<i>Epilachna indica</i>							+			
<i>Epilachna vigintioctopunctata</i>	++	++	•	+	++	•	+	+	•	+
<i>Erionota thrax</i>	•	•	+	+	+	+	+	+	•	+
<i>Eriophyes doctersi</i>										
<i>Erosomyia mangiferae</i>		+			+++	+			++	+
<i>Etiella zinckenella</i>	•	+			+++	+			++	+

Table 2 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Eublemma abrupta</i>		+				+				
<i>Eublemma brachygonia</i>		+				+				
<i>Eublemma versicolor</i>		+				+				
<i>Euchrysops cneus</i>	•					+	+		•	•
<i>Eudocima salaminia</i>		•		++		•	•	•		+++
<i>Euproctis</i> spp.	•					•	•			+
<i>Euproctis pseudoconspersa</i>					+					
<i>Eurema hecabe</i>					+	•	+	•	•	
<i>Eurydema pulchra</i>	•	+	+		•			•	•	
<i>Eutetranychus africanus</i>		+++								
<i>Eutetranychus orientalis</i>		+								
<i>Euthalia aconthea</i>					+	+		•	•	
<i>Eysarcoris guttiger</i>		+				•				
<i>Ferrisia virgata</i>	•	+	•	+		•	•	•	•	++
<i>Frankliniella</i> spp.		+			+					+
<i>Frankliniella occidentalis</i>						+				
<i>Frankliniella williamsi</i>		+								
<i>Glyphodes caesalis</i>					+++	+	+	++		•
<i>Glyphodes pulverulentalis</i>					++	+				
<i>Gryllotalpa africana</i>		+			•	+		+	•	++
<i>Gryllotalpa orientalis</i>	+				+				•	
<i>Gynaikothrips ficorum</i>		+								
<i>Haplothrips florcola</i>		++								
<i>Hedylepta indicata</i>	•	+	++		++				•	++
<i>Helicoverpa armigera</i>	+++	+++	++	+++	+++	+++	+	++	+++	+++
<i>Helicoverpa assulta</i>	•	+	+		++	+	•			++
<i>Heliothis</i> sp.					++					
<i>Heliothrips haemorrhoidalis</i>		+			++				•	
<i>Helula undalis</i>	•	+	+	+	+	++	+++	++	+	
<i>Helopeltis</i> sp.		+					•		+	
<i>Helopeltis bradyi</i>						•	•			+
<i>Helopeltis theivora</i>					++	++	•		++	++
<i>Heteropsylla cubana</i>	+	+++	+++	+++	+++	++	+	++	++	++
<i>Hexamitodera semivelutina</i>									•	
<i>Hidari irava</i>		•				+		•		++
<i>Hieroglyphus banian</i>	•	+	+	+	+					

Table 2 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Hippotion celerio</i>	•	+						•		++
<i>Holotrichia bidentata</i>						+			•	
<i>Holotrichia sinensis</i>		+			++				•	
<i>Homona coffearia</i>					+	+			+	
<i>Hyblaea puera</i>	++	++	++		+	++				
<i>Hydrellia sp.</i>					++				•	
<i>Hydrellia philippina</i>		•		+	+	+		++	•	++
<i>Hyperaeschrella insulicola</i>		+				•				
<i>Hypomeces squamosus</i>	+	+	++	+	++	++	+	++	+	
<i>Hyposidra talaca</i>					++	++		•		
<i>Hypothenemus hampei</i>		+	+		++	++		+	++	++
<i>Hypothenemus psidii</i>										+
<i>Hysteroneura setariae</i>	•					•	+			
<i>Icerya pulchra</i>						•	•		•	
<i>Icerya purchasi</i>		+			+	+	+		•	
<i>Icerya seychellarum</i>		+				•		•	•	
<i>Idioscopus clypealis</i>	+	+++		+	•	•	+		+	+++
<i>Idioscopus nitidulus</i>						++			•	+++
<i>Idioscopus niveosparsus</i>	+	+++	+++	+	++	++		•	+	+++
<i>Jacobiasca formosana</i>		+				+	+			
<i>Japanagromyza sp. nr angustifrons</i>					++					
<i>Japanagromyza tristella</i>						++				
<i>Lampides boeticus</i>		+				++	+	•	•	
<i>Lamproserma diemenalis</i>	•	+	+			+	+			
<i>Lawana imitata</i>						+				
<i>Lepidiota bimaculata</i>						+				
<i>Lepidiota discedens</i>		+							+	
<i>Lepidiota stigma</i>		+							+	
<i>Lepidosaphes beckii</i>										•
<i>Leptocoris acuta</i>	•	•	•	+	+	•	+	++	++	++
<i>Leptocoris oratorius</i>	•	+	•	+	++	+	•	++	++	•
<i>Leptoglossus gonagra</i>	•	+	•		•	+	•	++	++	
<i>Leucinodes orbonalis</i>	++	+	+	++	++	++	+	++		•
<i>Leucopholis irrorata</i>							•			++
<i>Leucopholis rorida</i>							+		+	
<i>Lipaphis erysimi</i>	+	+	+				+		•	

Table 2 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Liriomyza brassicae</i>	+		++		•	+				
<i>Lohita grandis</i>	+									
<i>Lophobaris piperis</i>	+				++	++			++	++
<i>Lymantria lunata</i>					++					
<i>Lymantria monacha</i>					++					
<i>Lyonetia</i> sp.			+							
<i>Macrotermes</i> spp.	+				+	+	+		•	++
<i>Macrotermes gilvus</i>						•				
<i>Mahasena corbetti</i>	•	++				++	+		•	+
<i>Maruca amboinalis</i>		+								
<i>Maruca testulalis</i>	+	+	+	+++	+++	++	+	+++	+	+
<i>Medythia suturalis</i>	+		+							
<i>Megalurothrips usitatus</i>		+				+				+
<i>Megymenum brevicornis</i>	•					+	+		•	+
<i>Melanagromyza sojae</i>		+			+++					
<i>Melanaphis sacchari</i>	•	+				+	+		•	
<i>Menophras atrilineata</i>					++					
<i>Meridarchis scyrodes</i>		+								
<i>Metanastria hyrtaca</i>		+							•	
<i>Metisa plana</i>										+
<i>Microtermes pakستانicus</i>										
<i>Mictis longicornis</i>										•
<i>Monolepta signata</i>			•	+	•					
<i>Mudaria magniplaga</i>		•								
<i>Mudaria variabilis</i>			++							+
<i>Mycterothrips setiventris</i>			•		++					
<i>Mylabris phalerata</i>	•	+				+				
<i>Mythimna</i> sp.	+					•				
<i>Mythimna venalba</i>										
<i>Mythimna separata</i>	++	+	++	++	•				+	•
<i>Myzus persicae</i>	•	+	+		+++	++	+		++	++
<i>Naranga aenescens</i>		•				+				++
<i>Neostauropus alternus</i>						•			++	++
<i>Nephopterix piratis</i>										+
<i>Nephotettix</i> spp.		+								
<i>Nephotettix nigropictus</i>	•	+	•	++	+	+	+	•	+++	•

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Nephrotettix virescens</i>	+	+	•	•	+	+++		•	+++	++
<i>Nezara viridula</i>	++	+	+	+	++	+	+	•	+	•
<i>Nilaparvata lugens</i>	•	+++	++	+++	+++	+++	+	+	+++	++
<i>Nipaecoccus nipae</i>	+				++					
<i>Niphonoclea</i> spp.										++
<i>Niphonoclea albata</i>										++
<i>Niphonoclea capito</i>										++
<i>Nomadacris succincta</i>		++	++		++				•	++
<i>Noorda albizonalis</i>		+						•		++
<i>Nothopeus fasciatipennis</i>									++	
<i>Nysius</i> sp.	+					•		•		
<i>Odoiporus longicollis</i>	•	+		+	++	+		•		
<i>Odontotermes</i> spp.	+							•		
<i>Olene mendosa</i>				+		+	•	•		++
<i>Olenecamptus bilobus</i>		•			+			•		
<i>Oligonychus coffeae</i>	•	++			+++				•	
<i>Oligonychus mangiferus</i>	•	+++					+			
<i>Omphisa anastomosalis</i>	+	+	+	++	+	+	+	•		
<i>Ophiomyia phaseoli</i>	+	+	++		++	++	+	•	+++	++
<i>Ophiusa coronata</i>	+				++					
<i>Ophiusa tirhaca</i>					++					
<i>Orgyia postica</i>	+	+	+		+	+		•	+	++
<i>Orgyia turbata</i>	•	+			•	+				
<i>Orosius orientalis</i>	++									
<i>Orseolia oryzae</i>	++	+	+	+++	++				+++	•
<i>Oryctes rhinoceros</i>	•	++	++	+	+++	++	+	+	+++	++
<i>Oryzaephilus surinamensis</i>	•	•	•	•	•	•	+	•	+	
<i>Ostrinia furnacalis</i>	•	+	•	++	+++	+++		+++	++	+++
<i>Ostrinia nubilalis</i>	+				+					+++
<i>Othreis fullonia</i>	•	+			++	+		++	•	
<i>Oxya</i> spp.	•	+	+		+	•	+		•	
<i>Oxyodes scrobiculata</i>	+									
<i>Papilio demoleus</i>	+	+	+	•	+	+	+			
<i>Papilio polytes</i>	+		•		+	+	+	•	•	+
<i>Parabemisia myricae</i>					+					
<i>Paraponyx stagnalis</i>	+	•		+	++	•		+++	+++	++

Table 2 (continued)

Table 2 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Parasa lepida</i>	•	+			+	+		•	+	‡
<i>Parasaissetia nigra</i>					+	+	•	•	+	
<i>Parlatoria ziziphi</i>	•		•	+	+	•	•		•	
<i>Parnara guttatus</i>	‡				+			•		
<i>Pectinophora gossypiella</i>	++	+	+	+	+				++	++
<i>Pentalonia nigronervosa</i>	•	+	+		+	•	+		•	‡
<i>Phaenacantha saccharicida</i>		+				+				
<i>Phragmataecia castaneae</i>						+			•	
<i>Phthorimaea operculella</i>	++	+			+++				+	
<i>Phyllocnistis citrella</i>	+	+++	++	++	++	+	+	+	+	++
<i>Phyllocoptura oleivora</i>		+++				+				
<i>Phyllotreta sp.</i>				•	++			+++		
<i>Phyllotreta chotanica</i>		+								
<i>Phyllotreta cruciferae</i>						+	+			
<i>Phyllotreta flexuosa</i>		+	+							
<i>Phyllotreta striolata</i>	+		•		+++		+			
<i>Phyllotreta vittata</i>		•							+	
<i>Pieris canidia</i>						•	+			
<i>Pieris rapae</i>	++	+			+		+		•	+
<i>Piezodorus hybneri</i>		+		+	+	•				
<i>Pinnaspis aspidistrae</i>						+				++
<i>Plagideicta sp.</i>								++		
<i>Planococcus citri</i>	•	+			+++	+		+	+	•
<i>Platymycteris sieversi</i>					++					
<i>Plesispa reichei</i>		+				+	+			•
<i>Plocaederus fulvicornis</i>	+							•		
<i>Plocaederus ferrugineus</i>		+								•
<i>Plocaederus obesus</i>	+				+					
<i>Plocaederus pedestris</i>		+								
<i>Plutella xylostella</i>	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
<i>Poecilocoris latus</i>	•				+					•
<i>Polyphagotarsonemus latus</i>	+	+				+	++		+	•
<i>Portesia scintillans</i>		+			+	+	++			
<i>Prays endocarpa</i>						++	+		•	
<i>Promecotheca cumingii</i>			+			+	+		•	
<i>Pseudaulacaspis pentagona</i>						•	+		•	

Table 2 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Pseudococcus</i> sp.		+			++	•				
<i>Ptecticus cingulatus</i>		+				•				
<i>Pterolophia bigibbera</i>									+	
<i>Raodíplosis orientalis</i>	+		+							
<i>Rapala pheretima</i>						+				
<i>Rastrococcus iceryoides</i>						++			•	
<i>Rastrococcus spinosus</i>			•			+		•	•	
<i>Recilia dorsalis</i>	•	+			+	•		•	+	•
<i>Rhaphidopalpa</i> sp. poss. <i>chinensis</i>				+						
<i>Rhipiphorothrips cruentatus</i>		+								
<i>Rhopalosiphum maidis</i>	•	+	+	+	++	+	+	•	•	++
<i>Rhopalosiphum padi</i>		+	+			•				
<i>Rhynchocoris poseidon</i>	•	+	•	+	++	+	•		•	
<i>Rhynchophorus ferrugineus</i>	•	++		++	++		+		+	+
<i>Rhynchophorus schach</i>	++					++	•		•	
<i>Rhynchophorus vulneratus</i>		+						•		
<i>Rhyncocoris serratus</i>								+	+	
<i>Rhytidodera simulans</i>	+			•	+	+	+	•	+	
<i>Riptortus</i> spp.		+				•		•		
<i>Rivula atimeta</i>								+		
<i>Saccharicoccus sacchari</i>		+				+	+		•	+
<i>Saissetia coffeeae</i>	•	+	•	•	•	+	•	•	•	
<i>Scirphophaga excerptalis</i>	•	+			++					
<i>Scirphophaga incertulas</i>	++	+	•	++	++	+		++	++	++
<i>Scirphophaga innotata</i>					+				•	•
<i>Scirphophaga nivella</i>	•	+			+			•		
<i>Scirtothrips dorsalis</i>	++	++							•	
<i>Scopelodes anthela</i>					++					
<i>Scopelodes testacea</i>					++		•			
<i>Scotinophara</i> sp.					+				•	
<i>Scotinophara cinerea</i>		•				•			++	
<i>Scotinophara coarctata</i>	•	+			++	++	+	+	•	
<i>Scrobipalpa helioipa</i>	•	•		++	+	+	+		•	
<i>Sepiomus</i> sp.		+								
<i>Sesamia</i> sp.					++					
<i>Sesamia inferens</i>	+	+	•	+	+	+		++	++	++

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Setora nitens</i> *	•	+	+		+	+	+	+	•	
<i>Sexava</i> spp.									+++	
<i>Sogatella furcifera</i>	++	+		•	++	++		+	+++	++
<i>Spodoptera</i> spp.										++
<i>Spodoptera exempta</i>									•	++
<i>Spodoptera exigua</i>	•	++			+++	•			•	
<i>Spodoptera litura</i>	+++	++	+	++	+++	+++	++	++	++	++
<i>Spodoptera mauritia</i>	+	+	•	+	++	++	++	•	++	•
<i>Spoladea recurvalis</i>				+						
<i>Statherotis discana</i>				+						
<i>Stenachroia elongella</i>		•			++					
<i>Stenchaetothrips biformis</i>	+	•		•	++	•			•	
<i>Stephanitis typica</i>	•	+			+	•	+	•	•	
<i>Sternochetus frigidus</i>	•	+				+	+	+++		
<i>Sternochetus goniocnemis</i>				+					•	
<i>Sternochetus mangiferae</i>	•	+			•	+			•	
<i>Stibaropus molginus</i>										
<i>Syllepte derogata</i>	+	+	•	+	+	+	+	•	•	
<i>Taeniothrips</i> sp.					+++	•				
<i>Taiwania circumdata</i>					+					
<i>Tarophagus colocasiae</i>	•					•			•	++
<i>Tessaratoma javanica</i>	+				•				•	
<i>Tessaratoma papillosa</i>	++					+				•
<i>Tetramoera schistaceana</i>					++		+		•	
<i>Tetranychus</i> spp.	+				++	+	+	+		++
<i>Tetranychus cinnabarinus</i>		•				+	+		•	
<i>Tetranychus hydrangeae</i>	+									
<i>Tetranychus kanzawai</i>						+				
<i>Tetranychus pierci</i>				++						
<i>Tetranychus truncatus</i>	++									
<i>Tetranychus urticae</i>	+				++	++	+		++	++
<i>Thosea</i> spp.										
<i>Thosea sinensis</i> †	+	+			+	•	+		•	++
<i>Thosea vetusta</i>	+	+			+	+	•	•	•	++
<i>Thrips flavus</i>	+						+			
<i>Thrips hawaiiensis</i>						+				

\* Probably includes several species

† Probably includes several species: true *T. sinensis* is not known from SE Asia

Table 2 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Thrips palmi</i>	+	++				+++	+	+	+	+++
<i>Thrips parvispinus</i>		+				+			+++	
<i>Thrips tabaci</i>	+	++			++	+	+	•	++	++
<i>Tiracola plagiata</i>		+			•	+			•	
<i>Tirathaba</i> sp.									+	•
<i>Tirathaba mundella</i>									•	
<i>Tirathaba rufivena</i>		+				+				•
<i>Toxoptera aurantii</i>	•	+	•	•	•	++	+	•	•	
<i>Toxoptera citricidus</i>	+	+		+	+	+	+	•	•	
<i>Trialeurodes ricini</i>	•	+		+						
<i>Trichoplusia ni</i>	++	++		++	+	•	•			
<i>Urentius hystericellus</i>										
<i>Utetheisa pulchelloides</i>	•	•				•	•	•	•	
<i>Valanga nigricornis</i>		•				+	++	•	•	
<i>Vanessa indica</i>										+
<i>Xanthodes transversa</i>					•	+		•	•	
<i>Xylaphothrips</i> sp.						+	•			
<i>Xyleborus</i> sp.	•							•		
<i>Xyleborus apertus</i>								++		
<i>Xyleborus formicatus</i>			•							
<i>Xyleutes ceramicus</i>		+								
<i>Xylotrechus quadripes</i>		+	+	+		++				
<i>Xylotrupes gideon</i>		•				++	•			
<i>Zeuzera coffeae</i>	++	•	++		•	++	++		•	
<i>Xylosandrus compactus</i>	•					++	•		•	++

Table 2 (continued)

**Table 3** The distribution and importance of the most important Southeast Asian arthropod pests (159 species).

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Aceria tulipae</i>		+			+++					++
<i>Achaea janata</i>	+	++	+	++	+	+		•		
<i>Agrius convolvuli</i>	•	+		+	++	+			++	
<i>Agrotis ipsilon</i>	+	+		+	+	++	+		++	++
<i>Alcidodes sp.</i>	•							+++		
<i>Alcidodes leeuweni</i>								++	++	
<i>Aleurodicus destructor</i>		+			+	+	+		+	
<i>Aleurodicus dispersus</i>	++	+++	++		+++	++	+	+++	++	+++
<i>Allocarsidara malayensis</i>			++			++	+		•	
<i>Amrasca devastans</i>	+++	++	+		+++				+++	+++
<i>Amritodus atkinsoni</i>	++	+++								
<i>Anomala spp.</i>	+++				++				++	
<i>Anomala antiqua</i>	+++	+				•			+	
<i>Anomis flava</i>	•	+			+	++			•	++
<i>Aphis craccivora</i>	+	+	+	+	+++	+	+	++	++	++
<i>Aphis gossypii</i>	++	+++	+	++	++	++	+	+	++	+++
<i>Apoderus notatus</i>	++				++					
<i>Aproaerema modicella</i>	++	+	++	+++		+			+	+
<i>Araecerus fasciculatus</i>						+	+		+	+
<i>Archips micaceanus</i>	•	+	++		++	+	+			
<i>Artona catoxantha</i>	+		•		•	++	•		++	
<i>Aspidiota destructor</i>	•	+		+	+	+	+		+	+
<i>Atherigona soccata</i>	•	++			++					
<i>Attacus atlas</i>	+				+	+	+		+	
<i>Aulacophora similis</i>		+	+		+++	+		+	++	
<i>Bactrocera cucurbitae</i>	+	+++	++	+++	+++	+++	+	+++	+++	+++
<i>Bactrocera dorsalis</i>	++	+++	++	++	+++	+++	++	+++	+++	+++
<i>Bactrocera latifrons</i>		+				++		++		+
<i>Bactrocera umbrosa</i>		+				++	+	++	+	++
<i>Bemisia tabaci</i>	•	+++			+	+	+++		++	
<i>Brevicoryne brassicae</i>		+			+++					++
<i>Bruchophagus mutabilis</i>					+++					
<i>Callosobruchus spp.</i>	++				++		++			
<i>Callosobruchus chinensis</i>	+	+			++	++	+		+	

**Table 3**

Table 3 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Chilo infuscatellus</i>	•	+	+	++	•				+	+++
<i>Chilo polychrysus</i>	•	+	+	++	+	+		•	+	+
<i>Chilo sacchariphagus</i>		+	+	+	++	++	+		+	+
<i>Chilo suppressalis</i>	•	+	+	+	++	++	+	++	++	++
<i>Chlumetia transversa</i>	•	++				++	+	++	++	++
<i>Chromatomyia horticola</i>						++				
<i>Chrysodeixis eriosoma</i>	•	•		+	+	++		•	•	++
<i>Citripestis sagittiferella</i>		+				++	+	+	+	++
<i>Cnaphalocrocis medinalis</i>	+	•	•	++	++	++	•	++	++	++
<i>Coccus viridis</i>	•	+	•	+	++	++	•	•	+	++
<i>Conogethes punctiferalis</i>	•	+	+	++	++	++		•		++
<i>Conopomorpha cramerella</i>		+				++				
<i>Cosmopolites sordidus</i>	?	+		•	++	++	+	+	+	++
<i>Crocidolomia pavonana</i>	+	+		+		+		++	++	++
<i>Cylas formicarius</i>	•	++	++	++	++	++	+	++	++	++
<i>Deporaus marginatus</i>	++	++				++	+	+		
<i>Diaphania indica</i>		+	•	+	++	++	+	+	•	++
<i>Diaphorina citri</i>	•	•				++	+	+	+	++
<i>Dysdercus cingulatus</i>	+	+	+	+	++	++	+	•	++	++
<i>Dysmicoccus brevipes</i>						++	+	•	++	++
<i>Earias vittella</i>	++	++	+	+	++	++	+	+	++	
<i>Empoasca sp.</i>	++	++		++		++	+	+		
<i>Empoasca flavescens</i>	+	•			++	++	+		+	
<i>Eotetranychus cendanai</i>		++								
<i>Epilachna vigintioctopunctata</i>	++	++	•		++	++	+		+	+
<i>Erionota thrax</i>	•	•	+	+	+	+	+	+	•	+
<i>Etiella zinckenella</i>	•	+			++	++	+		+	++
<i>Euchrysops cnejus</i>	•					•	+			
<i>Eutetranychus africanus</i>		++								
<i>Glyphodes caesalis</i>						++	+	+	•	
<i>Gryllotalpa africana</i>		+				•	+	+	•	
<i>Hedylepta indicata</i>	•	+			++	++	+		•	
<i>Helicoverpa armigera</i>	++	++	++	++	++	++	++	++	++	++
<i>Helicoverpa assulta</i>	•	+	+		++	++	+	•	++	
<i>Hellula undalis</i>	•	+	+	+	+	++	++	++	+	+
<i>Helopeltis theivora</i>					++	++	++	++	++	+

Table 3 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Heteropsylla cubana</i>	+	+++	+++	+++	+++	++	+	+++	++	++
<i>Hyblaea pueria</i>	++	++	++		+				•	++
<i>Hydrellia philippina</i>		•								
<i>Hypomeces squamosus</i>	+	+	++	+	++	++	+	++	+	++
<i>Hypothenemus hampei</i>		+	+		++	++		+	++	++
<i>Idioscopus clypealis</i>	+	+++		+		•	+	+	+	+++
<i>Idioscopus nitidulus</i>						++				+++
<i>Idioscopus niveosparsus</i>	+	+++	+++	+	++	++		•	+	+++
<i>Lampides boeticus</i>		+				++	+	•	•	
<i>Lepidosaphes beckii</i>	•	•			+	•	+	++	+	
<i>Leptocoris acuta</i>	•	+	•	+	++	++			+++	++
<i>Leptocoris oratorius</i>	++	+	•			+	+	++	+	•
<i>Leptoglossus gonagra</i>	•	+	•		•	+	•	++	•	++
<i>Leucinodes orbonalis</i>	++	+	+	++	++	++	+	++	•	
<i>Leucopholis irrata</i>										+++
<i>Lipaphis erysimi</i>	+	+	+			+	+		•	
<i>Lophobaris piperis</i>		+							++	
<i>Mahasena corbetti</i>									•	
<i>Maruca testulalis</i>		++								+
<i>Melanagromyza sojae</i>		+								•
<i>Mythimna separata</i>	++	+	++	++		•				
<i>Myzus persicae</i>	•	+	+			++	+		++	
<i>Neostauropus alternus</i>						•				
<i>Nephrotettix nigropictus</i>	•	+	•	++	+	+	+	•	+++	•
<i>Nephrotettix virescens</i>	+	+	•	•	+	++		•	+++	+
<i>Nezara viridula</i>	++	+	+	+	++	+	+	•	+	•
<i>Nilaparvata lugens</i>	•	+++	++	+++	++	++	+	+	+++	++
<i>Normadacris succincta</i>		++	++							
<i>Odoiporus longicollis</i>	•	+		+	++				•	
<i>Oligonychus coffeae</i>	•	++							•	
<i>Oligonychus mangiferus</i>	•	++								
<i>Omphisa anastomosalis</i>		+	+	++	+	+	+	•	•	
<i>Ophiomyia phaseoli</i>	+	+	++	++	++	++	+	•	+++	++
<i>Orgyia postica</i>		+	+		+	+	+	•	+	
<i>Orseolia oryzae</i>	++	+	+	+++	++	++	+	+++	+++	•
<i>Oryctes rhinoceros</i>	•	++	++	+	++	++	+	+	+++	++

Table 3 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Ostrinia furnacalis</i>	•	+	+	++	+++	++		+++	++	+++
<i>Ostrinia nubilalis</i>	+									
<i>Othreis fullonia</i>	•	+			++	+		++	•	
<i>Oxyodes scrobiculata</i>		+				•				
<i>Papilio demoleus</i>	+	+	+	•	+	+	+	•	•	+
<i>Papilio polytes</i>		+	•		+	+	+			
<i>Paraponyx stagnalis</i>	+			+	++			+++	++	++
<i>Parasa lepida</i>	•	+			+	+		•	++	++
<i>Pectinophora gossypiella</i>	++	+	+	+	+				++	++
<i>Pentalonia nigronervosa</i>	•	+	+		+	•	+		•	++
<i>Phthorimaea operculella</i>	++	+			+++				+	
<i>Phyllocnistis citrella</i>	+	+++	++	++	++	+	+	+	+	++
<i>Phyllocoptrus oleivora</i>		+++			+					
<i>Phyllotreta sp.</i>			•	++				+++		
<i>Phyllotreta striolata</i>	+		•		+++		+			
<i>Planoecoccus citri</i>	•	+						+	+	•
<i>Plutella xylostella</i>	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
<i>Polyphagotarsonemus latus</i>	+	+				+	++		+	•
<i>Rhopalosiphum maidis</i>	•	+	+	+	++	+	+	•	•	++
<i>Rhynchocoris poseidon</i>	•	+		+	++	+			•	•
<i>Rhynchophorus ferrugineus</i>	•	++		++	+++		+		+	+
<i>Rhynchophorus schach</i>		++				++	•		•	
<i>Rhytidodera simulans</i>	+					+	+	+	+	+
<i>Saccharicoccus sacchari</i>		+				+	+		•	+
<i>Scirpophaga incertulas</i>	++	+	•	++	+++	+		++	++	++
<i>Scirpophaga innotata</i>					+					•
<i>Scirtothrips dorsalis</i>	++	++				+				
<i>Scotinophara cinerea</i>		•				•			++	
<i>Scotinophara coarctata</i>	•	+			++	++	+	+	•	++
<i>Scrobipalpa heliopa</i>	•	•		++	+	+	+		•	
<i>Sesamia inferens</i>	+	+	•	+	+	+		++	++	++
<i>Setora nitens</i>	•	+	+		+	+	+	+	•	
<i>Sexava spp.</i>									++	
<i>Sogatella furcifera</i>	++	+			++	++		++	++	++
<i>Spodoptera exigua</i>	•	++			+++	•			•	
<i>Spodoptera litura</i>	+++	++	+	++	+++	+++	++	++	++	++

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Spodoptera mauritia</i>	+	+	•	+	++	++	+	•	++	•
<i>Sternochetus frigidus</i>	•	+				+	+	++	•	
<i>Sylepte derogata</i>	+	+	•	+	+	+	+	•	•	
<i>Taeniothrips</i> sp.					+++	•				
<i>Tarophagus proserpina</i>										++
<i>Tetranychus</i> spp.	+					++	+	+	+	++
<i>Tetranychus urticae</i>		+				++	++	+		++
<i>Thosea sinensis</i>		+		+		+	•		•	++
<i>Thrips palmi</i>	+	++				++	+	+	+	++
<i>Thrips parvispinus</i>						+		+++		
<i>Thrips tabaci</i>	+	++				++	+		•	++
<i>Toxoptera aurantii</i>	•	+	•	•	•	++	+		•	++
<i>Toxoptera citricidus</i>	+	+		+	+	++	+	•	•	•
<i>Trichoplusia ni</i>	++	++		++	+	++	+			
<i>Xylotrechus quadripes</i>		+		+		+++				
<i>Xylotrupes gideon</i>	++	•				++	•		•	
<i>Zeuzera coffeae</i>	•	++				++	++			++

Table 3 (continued)

**Table 4**

In this table the 160 most important arthropod pests listed in table 3 are arranged alphabetically in 5 groups according to the combined ratings they score for the region. The 47 species with the highest ratings (those with 10 and above) should be considered first for appropriateness as targets for classical biological control, followed next by the 89 species recording scores from 5 to 9. There are also 24 species listed from the lower end of the combined ratings scale. However, these have all been rated by one country as +++ or by two countries as ++. Whereas not of high regional importance, their local rating might well be justification for the particular countries concerned seeking support for a classical biological control approach for species from this group.

Species of Lepidoptera (39%) are the most common pests, followed by Hemiptera (28%) and Coleoptera (17%), with other orders (and Acarina) together contributing 17%. World wide, there has been a higher success rate with classical biological control of Hemiptera than other orders, followed by Lepidoptera.

**Table 4** Aggregated ratings for the most important arthropod pests.

(a) Ratings 3 or 4 (but only if +++ in one country or ++ in two countries)

<i>Alcidodes</i> sp.	3	<i>Neostauropus alternus</i>	4
<i>Alcidodes leuwenii</i>	4	<i>Oligonychus mangiferus</i>	4
<i>Amrasca</i> sp.	4	<i>Ostrinia nubilalis</i>	4
<i>Apoderus notatus</i>	4	<i>Phyllocoptrupa oleivora</i>	4
<i>Atherigona soccata</i>	4	<i>Rhynchoporus schach</i>	4
<i>Bruchophagus mutabilis</i>	3	<i>Scirpophaga innotata</i>	4
<i>Callosobruchus</i> sp.	4	<i>Scotinophora cinerea</i>	3
<i>Chromatomyia horticola</i>	3	<i>Sexava</i> spp.	3
<i>Eotetranychus cendanai</i>	3	<i>Taeniothrips</i> sp.	3
<i>Eutetranychus africanus</i>	3	<i>Tarophagus colocasiae</i>	3
<i>Heliothis</i> sp.	3	<i>Thrips parvispinus</i>	4
<i>Leucopholis irrorata</i>	3	<i>Xylotrupes gideon</i>	4

(b) Ratings 5 to 9

<i>Aceria tulipae</i>	6	<i>Lepidosaphes beckii</i>	5
<i>Achaea janata</i>	8	<i>Leptocoris oratorius</i>	9
<i>Agrius convolvuli</i>	7	<i>Leptoglossus gonagra</i>	6
<i>Aleurodicus destructor</i>	5	<i>Lipaphis erysimi</i>	5
<i>Allocarsidara malayensis</i>	5	<i>Lophobaris piperis</i>	7
<i>Amritodus atkinsoni</i>	5	<i>Mahasena corbetti</i>	5
<i>Anomala</i> spp.	7	<i>Melanagromyza sojae</i>	5
<i>Anomala antiqua</i>	6	<i>Mythimna separata</i>	8
<i>Anomis flava</i>	9	<i>Nephrotettix nigropictus</i>	9
<i>Araecerus fasciculatus</i>	6	<i>Nomadacris succinata</i>	6
<i>Archips micaceanus</i>	7	<i>Odoiporus longicollis</i>	5
<i>Artona catoxantha</i>	5	<i>Oligonychus coffeae</i>	5
<i>Aspidiotus destructor</i>	7	<i>Omphisa anastomosalis</i>	7
<i>Attacus atlas</i>	5	<i>Orgyia postica</i>	7
<i>Aulacophora similis</i>	9	<i>Othreis fullonia</i>	6
<i>Bactrocera latifrons</i>	6	<i>Papilio demoleus</i>	6
<i>Bactrocera umbrosa</i>	9	<i>Papilio polytes</i>	5
<i>Brevicoryne brassicae</i>	6	<i>Paraponyx stagnalis</i>	8
<i>Callosobruchus chinensis</i>	8	<i>Parasa lepida</i>	7
<i>Chilo infuscatellus</i>	8	<i>Pentalonia nigronervosa</i>	6
<i>Chilo polychrysus</i>	7	<i>Phthorimaea operculella</i>	7
<i>Chlumetia transversa</i>	8	<i>Phyllotreta</i> sp.	5

(continued on next page) 45

Table 4 (continued)

<i>Chrysodeixis eriosoma</i>	5	<i>Phyllotreta striolata</i>	5
<i>Citripestis sagittiferella</i>	6	<i>Planococcus citri</i>	7
<i>Coccus viridis</i>	7	<i>Polyphagotarsonemus latus</i>	6
<i>Conopomorpha cramerella</i>	7	<i>Rhopalosiphum maidis</i>	9
<i>Crocidolomia pavonana</i>	9	<i>Rhynchocoris poseidon</i>	5
<i>Deporaus marginatus</i>	6	<i>Rhytidodera simulans</i>	5
<i>Diaphania indica</i>	7	<i>Saccharicoccus sacchari</i>	5
<i>Diaphorina citri</i>	8	<i>Scirtothrips dorsalis</i>	5
<i>Empoasca sp.</i>	7	<i>Scotinophara coarctata</i>	8
<i>Empoasca flavaescens</i>	7	<i>Scrobipalpa heliopa</i>	5
<i>Epilachna vigintioctopunctata</i>	8	<i>Setora nitens</i>	6
<i>Erionota thrax</i>	7	<i>Spodoptera exigua</i>	5
<i>Etiella zinckenella</i>	8	<i>Sternochetus frigidus</i>	6
<i>Euchrysops cneulus</i>	5	<i>Syllepte derogata</i>	6
<i>Glyphodes caesalis</i>	7	<i>Tetranychus spp.</i>	8
<i>Gryllotalpa africana</i>	5	<i>Thosea sinensis</i>	5
<i>Hedylepta indicata</i>	7	<i>Thrips tabaci</i>	9
<i>Helicoverpa assulta</i>	7	<i>Toxoptera aurantii</i>	6
<i>Helopeltis theivora</i>	9	<i>Toxoptera citricidus</i>	6
<i>Hyblaea puera</i>	7	<i>Trichoplusia ni</i>	7
<i>Hydrellia philippina</i>	7	<i>Xylotrechus quadripes</i>	5
<i>Idioscopus nitidulus</i>	5	<i>Zeuzera coffeae</i>	8
<i>Lampides boeticus</i>	5		
(c) Ratings 10 to 14			
<i>Agrotis ipsilon</i>	11	<i>Myzus persicae</i>	12
<i>Aphis craccivora</i>	15	<i>Nephrotettix virescens</i>	11
<i>Aproaerema modicella</i>	11	<i>Nezara viridula</i>	10
<i>Bemisia tabaci</i>	10	<i>Ophiomyia phaseoli</i>	14
<i>Chilo sacchariphagus</i>	10	<i>Orseolia oryzae</i>	12
<i>Chilo suppressalis</i>	13	<i>Paraponyx stagnalis</i>	12
<i>Conogethes punctiferalis</i>	13	<i>Pectinophora gossypiella</i>	10
<i>Cosmopolites sordidus</i>	13	<i>Rhynchosporus ferrugineus</i>	10
<i>Dysdercus cingulatus</i>	12	<i>Sesamia inferens</i>	12
<i>Dysmicoccus brevipes</i>	10	<i>Sogatella furcifera</i>	13
<i>Hypomeces squamosus</i>	14	<i>Spodoptera mauritia</i>	11
<i>Hypothenemus hampei</i>	12	<i>Tetranychus urticae</i>	11
<i>Idioscopus clypealis</i>	10	<i>Thrips palmi</i>	12
<i>Leptocorisa acuta</i>	11		
(d) Ratings 15 to 19			
<i>Amrasca devastans</i>	15	<i>Maruca testulalis</i>	17
<i>Aphis gossypii</i>	19	<i>Oryctes rhinoceros</i>	17
<i>Cnaphalocrocius medinalis</i>	16	<i>Ostrinia furnacalis</i>	17
<i>Earias vittella</i>	15	<i>Phyllocnistis citrella</i>	16
<i>Idioscopus niveosparsus</i>	17	<i>Scirpophaga incertulas</i>	16
<i>Leucinodes orbonalis</i>	15		
(e) Ratings 20 and above			
<i>Aleurodicus dispersus</i>	22	<i>Heteropsylla cubana</i>	23
<i>Bactrocera cucurbitae</i>	25	<i>Nilaparvata lugens</i>	21
<i>Bactrocera dorsalis</i>	26	<i>Plutella xylostella</i>	30
<i>Cylas formicarius</i>	22	<i>Spodoptera litura</i>	22
<i>Helicoverpa armigera</i>	26		

Table 4 (continued)

## (f) Summary of ratings

	Number of Pests					Total	% (rounded)
	Below 5	5 to 9	10 to 14	15 to 19	20 and above		
Lepidoptera	4	39	9	7	3	62	39
Hemiptera	3	25	10	3	3	44	28
Coleoptera	7	14	4	1	1	27	17
Diptera	2	3	2		2	9	6
Acarina	4	4	1			9	6
Thysanoptera	2	2	1			5	3
Orthoptera	1	2				3	2
Hymenoptera	1					1	1
Total species	24	89	27	11	9	160	

**Table 5**

In this table the origin, or presumed origin, of the most important pest species is listed where possible. If it is difficult to presume the origin, because the species has long been widespread, the present main distribution of the species is indicated within brackets. Because of the lack of adequate data, it is probable that somewhat fewer species than indicated originated in Southeast Asia. Conversely it follows that the number of pests that have originated outside the region has probably been underestimated.

Experience has shown that the largest number of specific (or reasonably specific) natural enemies usually occurs in the area of origin of a species and, indeed, this is a useful guide to where a species may have evolved. Other guides are (i) the region where the largest number of species closely related to the pest occur and (ii) (for a phytophagous pest) the region where the host plant originated, particularly if the pest is specific or reasonably specific to it. In general, those pests that evolved outside the Southeast Asian region are far more likely to be suitable targets for classical biological control than those native to the region or to countries adjoining it. It is highly probable, however, that the distribution of many natural enemies is not uniform throughout Southeast Asia, let alone Asia, particularly if there are, or have been, barriers to dispersal, such as zones that are host-free or where the climatic or other physical conditions are inhospitable. For example, important species might attack a pest in Pakistan or India, but not be present in some or all of Indonesia or the Philippines. It would thus be premature to exclude the possibility that valuable natural enemies might be usefully moved from one part to another of the Asian or even the Southeast Asian region. However, to evaluate this possibility, the natural enemies of each pest would have to be investigated in some detail and account taken also of any significantly lower pest abundance in some regions than in others.

Where only a genus is listed in table 4 (as on 10 occasions) it is not possible to assign an origin to the unidentified species and these pests are omitted from table 5.

**Table 5** Origin of the arthropod pests scoring 5+(or more), or at least +++ in one country or ++ in two countries.

	Species	Order	Family	Origin
1	<i>Aceria tulipae</i>	Aca	Eriophyidae	(Cosmopolitan)
2	<i>Achaea janata</i>	Lep	Noctuidae	(Africa, India - Taiwan)
3	<i>Agrius convolvuli</i>	Lep	Sphingidae	(Europe - Africa - Asia)
4	<i>Agrotis ipsilon</i>	Lep	Noctuidae	(Cosmopolitan)
5	<i>Alcidodes leuwenii</i>	Col	Curculionidae	SE Asia
6	<i>Aleurodicus destructor</i>	Hem	Aleyrodidae	Tropical America
7	<i>Aleurodicus dispersus</i>	Hem	Aleyrodidae	Central America
8	<i>Allocarsidara malayensis</i>	Hem	Carsidaridae	SE Asia
9	<i>Amrasca devastans</i>	Hem	Cicadellidae	India - Myanmar
10	<i>Amritodus atkinsoni</i>	Hem	Cicadellidae	India - Myanmar
11	<i>Anomala antiqua</i>	Col	Scarabaeidae	India
12	<i>Anomis flava</i>	Lep	Noctuidae	(Africa - SE Asia)
13	<i>Aphis craccivora</i>	Hem	Aphididae	European warm temperate
14	<i>Aphis gossypii</i>	Hem	Aphididae	Cosmopolitan (?Americas)
15	<i>Apoderus notatus</i>	Col	Curculionidae	SE Asia
16	<i>Aproaerema modicella</i>	Lep	Gelechiidae	(India to Indonesia)
17	<i>Araecerus fasciculatus</i>	Col	Anthribidae	SE Asia
18	<i>Archips micaceanus</i>	Lep	Tortricidae	(India, China, SE Asia)
19	<i>Artona catoxantha</i>	Lep	Zygaenidae	SE Asia
20	<i>Aspidiottus destructor</i>	Hem	Diaspididae	(Tropicopolitan)
21	<i>Atherigona soccata</i>	Dip	Muscidae	(Africa - SE Asia)
22	<i>Attacus atlas</i>	Lep	Saturniidae	(India - SE Asia)
23	<i>Aulacophora similis</i>	Col	Chrysomelidae	SE Asia
24	<i>Bactrocera cucurbitae</i>	Dip	Tephritidae	SE Asia

(continued on next page)

Table 5 (continued)

Species	Order	Family	Origin
25 <i>Bactrocera dorsalis</i>	Dip	Tephritidae	SE Asia
26 <i>Bactrocera latifrons</i>	Dip	Tephritidae	SE Asia
27 <i>Bactrocera umbrosa</i>	Dip	Tephritidae	SE Asia
28 <i>Bemisia tabaci</i>	Hem	Aleyrodidae	(possibly Pakistan; patchily present - tropical and warm temperate)
29 <i>Brevicoryne brassicae</i>	Hem	Aphididae	(Temperate regions and tropics, esp. N. hemisphere)
30 <i>Bruchophagus mutabilis</i>	Hym	Eurytomidae	(Eastern Europe - SE Asia)
31 <i>Callosobruchus chinensis</i>	Col	Bruchidae	SE Asia
32 <i>Chilo infuscatellus</i>	Lep	Pyralidae	(Afghanistan - Taiwan)
33 <i>Chilo polychrysus</i>	Lep	Pyralidae	(India - China - Indonesia, Australia)
34 <i>Chilo sacchariphagus</i>	Lep	Pyralidae	SE Asia
35 <i>Chilo suppressalis</i>	Lep	Pyralidae	India - China, SE Asia
36 <i>Chlumetia transversa</i>	Lep	Noctuidae	Indo-Australian tropics
37 <i>Chromatomyia horticola</i>	Dip	Agromyzidae	(Europe - Africa - Asia: not Americas)
38 <i>Chrysodeixis eriosoma</i>	Lep	Noctuidae	Old World tropics
39 <i>Citripestis sagittiferella</i>	Lep	Pyralidae	SE Asia
40 <i>Cnaphalocrocis medinalis</i>	Lep	Pyralidae	India - SE Asia - Australia
41 <i>Coccus viridis</i>	Hem	Coccidae	(Tropicopolitan)
42 <i>Conogethes punctiferalis</i>	Lep	Pyralidae	(India - SE Asia - China - Australia)
43 <i>Conopomorpha cramerella</i>	Lep	Gracillariidae	Sri Lanka
44 <i>Cosmopolites sordidus</i>	Col	Curculionidae	Indo-Malaysian region
45 <i>Crocidolomia pavonana</i>	Lep	Pyralidae	(Africa, Asia)
46 <i>Cylas formicarius</i>	Col	Apionidae	Indo-Malaysian region
47 <i>Deporaus marginatus</i>	Col	Curculionidae	SE Asia
48 <i>Diaphania indica</i>	Lep	Pyralidae	Old World tropics
49 <i>Diaphorina citri</i>	Hem	Psyllidae	(Southern Asia, parts of tropical South America)
50 <i>Dysdercus cingulatus</i>	Hem	Pyrrhocoridae	(Mediterranean - Australia)
51 <i>Dysmicoccus brevipes</i>	Hem	Pseudococcidae	(Tropicopolitan)
52 <i>Earias vittella</i>	Lep	Noctuidae	(India - SE Asia - Australia)
53 <i>Empoasca flavesrens</i>	Hem	Cicadellidae	(Europe - SE Asia)
54 <i>Eotetranychus cendanai</i>	Aca	Tetranychidae	SE Asia
55 <i>Epilachna vigintioctopunctata</i>	Col	Coccinellidae	(Widespread Oriental sp., India - Australia)
56 <i>Erionota thrax</i>	Lep	Hesperiidae	SE Asia
57 <i>Etiella zinckenella</i>	Lep	Pyralidae	(Cosmopolitan, genus is mainly Australian)
58 <i>Euchrysops cnejus</i>	Lep	Lycaenidae	(India - SE Asia - Australia)
59 <i>Eutetranychus africanus</i>	Aca	Tetranychidae	Southern Africa
60 <i>Glyphodes caesalis</i>	Lep	Pyralidae	(India - Sri Lanka - Myanmar)
61 <i>Gryllotalpa africana</i>	Ort	Gryllotalpidae	(Africa - tropical Asia)
62 <i>Hedylepta indicata</i>	Lep	Pyralidae	SE Asia
63 <i>Helicoverpa armigera</i>	Lep	Noctuidae	Old World tropics
64 <i>Helicoverpa assulta</i>	Lep	Noctuidae	Old World tropics
65 <i>Hellula undalis</i>	Lep	Pyralidae	(Europe - Africa - much of Asia)
66 <i>Helopeltis theivora</i>	Hem	Miridae	SE Asia
67 <i>Heteropsylla cubana</i>	Hem	Psyllidae	Tropical America
68 <i>Hyblaea puera</i>	Lep	Hyblaeidae	(Africa - India - Australia)

Table 5 (continued)

Species	Order	Family	Origin
69 <i>Hydrellia philippina</i>	Dip	Ephydriidae	SE Asia
70 <i>Hypomeces squamosus</i>	Col	Curculionidae	SE Asia
71 <i>Hypothenemus hampei</i>	Col	Scolytidae	Central Africa
72 <i>Idioscopus clypealis</i>	Hem	Cicadellidae	India - SE Asia
73 <i>Idioscopus nitidulus</i>	Hem	Cicadellidae	SE Asia
74 <i>Idioscopus niveosparsus</i>	Hem	Cicadellidae	India - SE Asia
75 <i>Lampides boeticus</i>	Lep	Lycaenidae	Old World tropics
76 <i>Lepidosaphes beckii</i>	Hem	Diaspididae	(Tropicopolitan)
77 <i>Leptocorisa acuta</i>	Hem	Alydidae	(Pakistan - SE Asia - Pacific)
78 <i>Leptocorisa oratorius</i>	Hem	Alydidae	(Pakistan - SE Asia)
79 <i>Leptoglossus gonagra</i>	Hem	Coreidae	SE Asia
80 <i>Leucinodes orbonalis</i>	Lep	Pyralidae	(Africa - SE Asia)
81 <i>Leucopholis irrorata</i>	Col	Scarabaeidae	(SE Asia)
82 <i>Lipaphis erysimi</i>	Hem	Aphididae	(Cosmopolitan)
83 <i>Lophobaris piperis</i>	Col	Curculionidae	SE Asia
84 <i>Mahasena corbetti</i>	Lep	Psychidae	SE Asia
85 <i>Maruca testulalis</i>	Lep	Pyralidae	possibly South America
86 <i>Melanagromyza sojae</i>	Dip	Agromyzidae	(Tropical Asia - Australia - Africa)
87 <i>Mythimna separata</i>	Lep	Noctuidae	(Tropical Asia - Australia)
88 <i>Myzus persicae</i>	Hem	Aphididae	probably Asia
89 <i>Neostaurops alternus</i>	Lep	Notodontidae	(India - SE Asia)
90 <i>Nephrotettix nigropictus</i>	Hem	Cicadellidae	SE Asia
91 <i>Nephrotettix virescens</i>	Hem	Cicadellidae	India - SE Asia
92 <i>Nezara viridula</i>	Hem	Pentatomidae	Mediterranean - North Africa
93 <i>Nilaparvata lugens</i>	Hem	Delphacidae	SE Asia
94 <i>Nomadacris succincta</i>	Ort	Acrididae	India - SE Asia
95 <i>Odoiporus longicollis</i>	Col	Curculionidae	SE Asia
96 <i>Oligonychus coffeae</i>	Aca	Tetranychidae	SE Asia
97 <i>Oligonychus mangiferus</i>	Aca	Tetranychidae	(Pantropical)
98 <i>Omphisa anastomosalis</i>	Lep	Pyralidae	(India - SE Asia - PNG)
99 <i>Ophiomyia phaseoli</i>	Dip	Agromyzidae	Mediterranean - SE Asia
100 <i>Orgyia postica</i>	Lep	Lymantriidae	(India - SE Asia)
101 <i>Orseolia oryzae</i>	Dip	Cecidomyiidae	SE Asia
102 <i>Oryctes rhinoceros</i>	Col	Scarabaeidae	SE Asia
103 <i>Othreis fullonia</i>	Lep	Noctuidae	Old World tropics
104 <i>Ostrinia furnacalis</i>	Lep	Pyralidae	(India - SE Asia - Australia - China - Japan)
105 <i>Ostrinia nubilalis</i>	Lep	Pyralidae	(Southern Europe, N. America)
106 <i>Papilio demoleus</i>	Lep	Papilionidae	Indo-Australian tropics
107 <i>Papilio polytes</i>	Lep	Papilionidae	Oriental region
108 <i>Paraponyx stagnalis</i>	Lep	Pyralidae	(India - SE Asia - Australia - S. Africa)
109 <i>Parasa lepida</i>	Lep	Limacodidae	(India - SE Asia - China)
110 <i>Pectinophora gossypiella</i>	Lep	Gelechiidae	(Australia - SE Asia - India - Egypt - USA)
111 <i>Pentalonia nigronervosa</i>	Hem	Aphididae	SE Asia
112 <i>Phthorimaea operculella</i>	Lep	Gelechiidae	South America
113 <i>Phyllocnistis citrella</i>	Lep	Phyllocnistidae	(Africa or Asia)
114 <i>Phyllocoptrus oleivora</i>	Aca	Eriophyidae	Asia
115 <i>Phyllotreta striolata</i>	Col	Chrysomelidae	Europe
116 <i>Planococcus citri</i>	Hem	Pseudococcidae	(Cosmopolitan)
117 <i>Plutella xylostella</i>	Lep	Yponomeutidae	Southern Europe

Table 5 (continued)

	<b>Species</b>	<b>Order</b>	<b>Family</b>	<b>Origin</b>
118	<i>Polyphagotarsonemus latus</i>	Aca	Tarsonemidae	(Cosmopolitan)
119	<i>Rhopalosiphum maidis</i>	Hem	Aphididae	probably Asia
120	<i>Rhynchocoris poseidon</i>	Hem	Pentatomidae	SE Asia
121	<i>Rhynchophorus ferrugineus</i>	Col	Curculionidae	SE Asia
122	<i>Rhynchophorus schach</i>	Col	Curculionidae	SE Asia
123	<i>Rhytidodera simulans</i>	Col	Cerambycidae	SE Asia
124	<i>Saccharicoccus sacchari</i>	Hem	Pseudococcidae	Papua New Guinea
125	<i>Scirpophaga incertulas</i>	Lep	Pyralidae	(India - China - SE Asia)
126	<i>Scirpophaga innotata</i>	Lep	Pyralidae	(SE Asia - Australia)
127	<i>Scirtothrips dorsalis</i>	Thy	Thripidae	India - SE Asia
128	<i>Scotinophara cinerea</i>	Hem	Pentatomidae	SE Asia
129	<i>Scotinophara coarctata</i>	Hem	Pentatomidae	SE Asia
130	<i>Scrobipalpa heliopa</i>	Lep	Gelechiidae	Australia (Now widespread)
131	<i>Sesamia inferens</i>	Lep	Noctuidae	(India - SE Asia)
132	<i>Setora nitens</i>	Lep	Limacodidae	Peninsula Malaysia, Sumatra, Java
133	<i>Sogatella furcifera</i>	Hem	Delphacidae	SE Asia
134	<i>Spodoptera exigua</i>	Lep	Noctuidae	(N. America - Africa - Europe, India - Australia)
135	<i>Spodoptera litura</i>	Lep	Noctuidae	(India - Australia)
136	<i>Spodoptera mauritia</i>	Lep	Noctuidae	(India - Australia)
137	<i>Sternochetus frigidus</i>	Col	Curculionidae	SE Asia
138	<i>Syllepte derogata</i>	Lep	Pyralidae	(W. Africa - SE Asia - Australia - Pacific)
139	<i>Tarophagus colocasiae</i>	Hem	Delphacidae	SE Asia
140	<i>Tetranychus urticae</i>	Aca	Tetranychidae	(Cosmopolitan)
141	<i>Thosea sinensis</i>	Lep	Limacodidae	China
142	<i>Thrips palmi</i>	Thy	Thripidae	SE Asia
143	<i>Thrips parvispinus</i>	Thy	Thripidae	SE Asia
144	<i>Thrips tabaci</i>	Thy	Thripidae	Middle East
145	<i>Toxoptera aurantii</i>	Hem	Aphididae	Asia
146	<i>Toxoptera citricidus</i>	Hem	Aphididae	Asia
147	<i>Trichoplusia ni</i>	Lep	Noctuidae	(Europe - India - SE Asia - China)
148	<i>Xylotrechus quadripes</i>	Col	Cerambycidae	Oriental
149	<i>Xylotrupes gideon</i>	Col	Scarabaeidae	India - SE Asia
150	<i>Zeuzera coffeae</i>	Lep	Cossidae	(India - PNG)

**Table 6**

This table summarises the detailed information presented in table 5 and provides, for the major families of pests, a breakdown of data on the number of pests that are believed to have originated outside the region. Because of major uncertainties in the presumed origin of many pests, only very broad conclusions can be drawn. The results indicate that about two thirds of major arthropod pests are probably of Asian or Southeast Asian origin a very much higher proportion of endemism than for pests in Australia, New Zealand, the oceanic Pacific or California. At least 24 of the pests (15%) appear to be exotic to Southeast Asia and if information is assembled on this group and for the 29 pests that are now cosmopolitan, it will provide a valuable basis for the selection of appropriate biological control targets. At least 8 have already been targets elsewhere and some control successes have been reported.

**Table 6** Overview of the relationship and origin of the 150 most important arthropod pests in Southeast Asia.

Family	Order	No species	Origin					
			Europe	Old World	Africa	Americas	Asia	Cosmopolitan (not determined)
Pyralidae	Lep	22	1	1		1	14	5
Noctuidae	Lep	15		4			6	5
Aphidiidae	Hem	9	2			1	5	1
Curculionidae	Col	9					9	
Cicadellidae	Hem	8					8	
	Aca	8	1		1		4	2
Scarabaeidae	Col	5					5	
Gelechiidae	Lep	4				2		2
Pentatomidae	Hem	4	1				3	
Tephritisidae	Dip	4					4	
Thripidae	Thy	4		1			3	
Agromyzidae	Dip	3					3	
Aleyrodidae	Hem	3				2	1	
Delphacidae	Hem	3					3	
Limacodidae	Lep	3					3	
Pseudococcidae	Hem	3					1	2
7 families with 2 species		14 )				1	25	
29 families with 1 species		29 )	3	2	1			11
Totals	150	8	8	2	7	77	28	

Table 7 Major weeds in Southeast Asia.

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Abutilon indicum</i> (L.) Sweet	Malvaceae	Indian lantern flower	pea, cotton
<i>Achyranthes aspera</i> L.	Amaranthaceae		pigeon pea, rice
<i>Aeschynomene aspera</i> L.	Fabaceae		rice
<i>Aeschynomene indica</i> L.	Fabaceae	jointvetch, budda pea	rice, water
<i>Ageratina adenophora</i> (Sprengel) R.M. King & H. Robinson	Asteraceae		widespread
<i>Ageratum conyzoides</i> L.	Asteraceae	tropic ageratum, goatweed, blue top alligatorweed	rice
<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Amaranthaceae		
<i>Alternanthera sessilis</i> (L.) R.Br. ex Roem. & Schult.	Amaranthaceae	sessile joyweed	rice
<i>Alternanthera triandra</i>	see <i>Alternanthera sessilis</i>		
<i>Amaranthus</i> spp.	Amaranthaceae		bean, vegetables
<i>Amaranthus blitum</i>	see <i>Amaranthus lividus</i>		
<i>Amaranthus lividus</i> L.	Amaranthaceae		orchards, banana
<i>Amaranthus spinosus</i> L.	Amaranthaceae	spiny amaranth, spiny pigweed, needle burr	widespread, vegetables
<i>Amaranthus viridis</i> L.	Amaranthaceae	slender amaranth, green amaranth	cabbage, vegetables
<i>Aneilema nudiflorum</i>	see <i>Murdannia nudiflora</i>		
<i>Asystasia coromandeliana</i>	see <i>Asystasia gangetica</i>		
<i>Asystasia gangetica</i> (L.) T. Anders.	Acanthaceae		
<i>Asystasia intrusa</i> Auct. non (Forsk.) Blume	Acanthaceae	common asystasia	cocoa, coconut, rubber, orchards,
<i>Axonopus compressus</i> (Sw.) P. Beauv.	Poaceae	broadleaf carpet grass	pineapple, oil palm
<i>Azolla pinnata</i> R.Br.	Azollaceae	azolla, water fern	orchards
<i>Bacopa monnieri</i> (L.) Pennell	Scrophulariaceae		orchards, capsicum, rubber, oil palm,
<i>Bidens pilosa</i> L.	Asteraceae	cobbler's pegs, spanish needle	vegetables
<i>Blechnum orientale</i> L.	Blechnaceae		rice
<i>Boerhavia diffusa</i> L.	Nyctaginaceae		rice
<i>Borreria</i> spp.	Rubiaceae	spiderling, tarvine	cabbage, plantations
<i>Borreria articularis</i> (L.f) F.N. Williams	Rubiaceae		pineapple, guava
<i>Borreria laevis</i> (Lam.) Griseb.	Rubiaceae		rice, maize
<i>Borreria latifolia</i> (Aubl.) Schum.	Rubiaceae	broadleaf button weed	coconut
			groundnut
			rice
			rice, orchards, vegetables, rubber,
			oil palm

Table 7

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Bothriochloa pertusa</i> (L.) A. Camus <i>Brachiaria distachya</i> (L.) Stapf <i>Brachiaria mutica</i> (Forssk.) Stapf	Poaceae Poaceae Poaceae	paragrass, panicum grass buffalo grass common brachiaria running grass	upland rice orchards rice, vegetables, oil palm
<i>Brachiaria paspaloides</i> (Presl) C.E. Hubb. <i>Brachiaria reptans</i> (L.) Gard. & C.E. Hubb <i>Bulbostylis barbata</i> (Rottb.) C.B. Clarke <i>Calopogonium mucunoides</i> Desv. <i>Cardiospermum halicacabum</i> L. <i>Cassia tora</i> L. <i>Celosia argentea</i> L. <i>Cenchrus echinatus</i> L.	Poaceae Poaceae Cyperaceae Fabaceae Sapindaceae Caesalpiniaceae Amaranthaceae Poaceae	foetid cassia quail grass southern sandburr hedgehog grass, burrgrass barbed grass	orchards, coffee, tea, rice cabbage, maize tobacco, rice, pineapple cocoa, coconut, oil palm, rubber sorghum, rice, oil palm pigeon pea, rubber groundnut, rice rice, hemp
<i>Centotheca lappacea</i> (L.) Desv. <i>Centrosema pubescens</i> Benth. <i>Ceratophyllum demersum</i> L. <i>Ceratopteris pteridoides</i> (Hook.) Hieron.	Poaceae Fabaceae Ceratophyllaceae Parkeriaceae	hornwort, coontail floating stag's horn fern, pod fern, swamp fern stone wort	cocoa, coconut, rubber maize, plantations rice rice
<i>Chara zeylanica</i> Willd. <i>Chloris barbata</i> (L.) Sw. <i>Chloris inflata</i> Link	Characeae see <i>Chloris inflata</i> Poaceae	swollen fingergrass, purpletop chloris, plush grass bitter bush, siam weed	rice soybean, maize, sugarcane, groundnut
<i>Chromolaena odorata</i> (L.) R.M. King & H. Robinson <i>Cleome ciliata</i> <i>Cleome rutidosperma</i> DC.	Asteraceae see <i>Cleome rutidosperma</i> Capparidaceae	yellow cleome	oil palm, rubber, coffee, cashew, fruit, forestry
<i>Cleome viscosa</i> L. <i>Clidemia hirta</i> (L.) D. Don <i>Commelinopsis benghalensis</i> L. <i>Commelinopsis diffusa</i> Burm. f. <i>Commelinopsis nudiflora</i> <i>Convolvulus arvensis</i> L. <i>Corchorus olitorius</i> L. <i>Crotalaria pallida</i> Aiton	Capparidaceae Melastomataceae Commelinaceae Commelinaceae see <i>Murdannia nudiflora</i> Convolvulaceae Tiliaceae Fabaceae	wild caia, tickweed Koster's curse dayflower, hairy wandering jew spreading dayflower	orchards, rice, tobacco, immature plantations, vegetables rice, tobacco orchards, rubber, oil palm soybean, rice rice, brassicas
<i>Crotalaria striata</i> <i>Croton hirtus</i> L'Her. <i>Cyclosorus aridus</i> (Don) Ching	see <i>Crotalaria pallida</i> Euphorbiaceae Thelypteridaceae	tossa jute striped crotalaria, showy crotalaria	wheat, rice rice cassava
			orchards, tobacco, vegetables cocoa, coconut

Table 7 (continued)

Table 7 (continued)

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	bermuda grass, couch	rice, soybean, groundnut etc
<i>Cyperus aromaticus</i> (Ridley) Mattf. & Kuek.	Cyperaceae		rice, pineapple, watermelon, vegetables
<i>Cyperus babakan</i> Steudel	Cyperaceae		rice
<i>Cyperus babakensis</i>	see <i>Cyperus babakan</i>		
<i>Cyperus brevifolius</i> (Rottb.) Hasskal	Cyperaceae	short kyllingia	rice, pineapple, watermelon
<i>Cyperus compactus</i> Retz.	Cyperaceae		rice
<i>Cyperus compressus</i> L.	Cyperaceae	hedgehog cyperus	cocoa, coconut, watermelon, pineapple
<i>Cyperus difformis</i> L.	Cyperaceae	small flowered umbrella plant	rice, vegetables, orchards
<i>Cyperus diffusus</i> Vahl	Cyperaceae		rice
<i>Cyperus digitatus</i> Roxb.	Cyperaceae	digitate cyperus	rice
<i>Cyperus halpan</i>	see <i>Cyperus haspan</i>		rice, pineapple
<i>Cyperus haspan</i> L.	Cyperaceae	umbrella sedge, rice flatsedge, grasshoppers cyperus	rice, groundnut, capsicum, pineapple, vegetables
<i>Cyperus imbricatus</i> Retz.	Cyperaceae	white kyllingia	rice, vegetables, capsicum
<i>Cyperus iria</i> L.	Cyperaceae	hairy cyperus	rice, vegetables, orchards
<i>Cyperus kyllingia</i> Endl.	Cyperaceae	bunchy sedge	rice, capsicum, vegetables, orchards
<i>Cyperus odoratus</i> L.	Cyperaceae	elegant cyperus	rice, pineapple
<i>Cyperus pilosus</i> Vahl	Cyperaceae	nutgrass, nutsedge, purple nutsedge	rice
<i>Cyperus platystylis</i> R. Br.	Cyperaceae		rice, vegetables, orchards
<i>Cyperus polystachyos</i> Rottb.	Cyperaceae		rice, oil palm, rubber
<i>Cyperus pulcherrimus</i> Willd. ex Kunth	Cyperaceae		rice, vegetables, orchards
<i>Cyperus rotundus</i> L.	Cyperaceae		
<i>Cyperus zollingeri</i> Steudel	Cyperaceae	diffuse panic grass	orchards, vegetables
<i>Cytococcum accrescens</i> (Trin.) Stapf	Poaceae	shining panic grass	banana, durian, rubber, coconut
<i>Cytococcum oxyphyllum</i> (Hochst ex Steudel) Stapf	Poaceae		cocoa, coconut, oil palm, rubber
<i>Cytococcum trigonum</i> (Retz.) A. Camus	Poaceae		cocoa, coconut, oil palm, rubber
<i>Dactyloctenium aegyptium</i> (L.) Richt.	Poaceae	crowfoot grass, coast buttongrass, beach wiregrass, Egyptian fingergrass	soybean, vegetables, rubber, tapioca
<i>Desmodium triflorum</i> (L.) DC.	Fabaceae		tobacco
<i>Dicranopteris linearis</i>	see <i>Gleichenia linearis</i>		
<i>Digitaria adscendens</i>	see <i>Digitaria ciliaris</i>		
<i>Digitaria ciliaris</i> (Retz.) Koel.	Poaceae	fingergrass, tropical crabgrass, summergrass	orchards, vegetables, cocoa, coconut, oil palm, rubber
<i>Digitaria fuscescens</i> (Presl) Henr.	Poaceae	common crabgrass	tobacco, vegetables, rubber

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Digitaria longiflora</i>	see <i>Digitaria violascens</i>		
<i>Digitaria longiflora</i> (Retz.) Pers.	Poaceae		maize, rice
<i>Digitaria sanguinalis</i> (L.) Scop.	Poaceae	large crabgrass, hairy crabgrass, hairy fingergrass	rice, castor
<i>Digitaria violascens</i> Link	Poaceae		cocoa, coconut
<i>Echinochloa</i> sp.	Poaceae	jungle rice	radish
<i>Echinochloa colona</i> (L.) Link	Poaceae	jungle rice, birdspice, awnless barnyard grass	vegetables, rice
<i>Echinochloa crus-galli</i> (L.) P. Beauv.	Poaceae	barnyard grass, watergrass	rice
<i>Echinochloa glabrescens</i> Munro ex Hook.f.	Poaceae		rice
<i>Echinochloa oryzoides</i> (Ard.) Fritsch	Poaceae		rice
<i>Eclipta alba</i>	see <i>Eclipta prostrata</i>		
<i>Eclipta prostrata</i> (L.) L.	Asteraceae	white heads, false dairy	rice, groundnut, soybean, etc
<i>Eichhornia crassipes</i> (Mart.) Solms	Pontederiaceae	water hyacinth	rice, water
<i>Eleocharis chaetaria</i>	see <i>Eleocharis retroflexa</i>		
<i>Eleocharis dulcis</i> (Burm. f.) Henschel	Cyperaceae	ground chestnut, water chestnut	rice
<i>Eleocharis retroflexa</i> (Poir.) Urban	Cyperaceae		rice
<i>Eleocharis variegata</i> (Poir.) Presl	Cyperaceae		rice
<i>Eleusine coracana</i> (L.) Gaertner	Poaceae	Indian millet	rice
<i>Eleusine indica</i> (L.) Gaertner	Poaceae	crowsfoot grass, goosegrass, wiregrass	rice, vegetables, orchards, rubber, oil palm, cassava, coffee, tea
<i>Emilia sonchifolia</i> (L.) DC.	Asteraceae	emilia, red tassel flower, purple sowthistle	pineapple, vegetables, mulberry
<i>Enydra fluctuans</i> Lour.	Asteraceae		
<i>Eragrostis japonica</i> (Thunb.) Trin.	Poaceae	delicate lovegrass	rice
<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem. & Schult.	Poaceae	feathery eragrostis	rice
<i>Eragrostis unioloides</i> (Retz.) Nees ex Steudel	Poaceae		pineapple, banana, vegetables
<i>Erechtites hieracifolia</i> (L.) Rafin ex DC.	Asteraceae	American fireweed	rice, vegetables
<i>Erechtites valerianaefolia</i> DC.	Asteraceae	Brazilian fireweed	orchards, mulberry
<i>Erigeron sumatrensis</i> Retz.	Asteraceae	fleabane	orchards, vegetables, oil palm, rubber, cocoa
<i>Eriocaulon truncatum</i> Buch.-Ham. ex Mart.	Eriocaulaceae		orchards, vegetables, plantations
<i>Eupatorium adenophorum</i>	see <i>Ageratina adenophora</i>		rice
<i>Eupatorium odoratum</i>	see <i>Chromolaena odorata</i>		
<i>Euphorbia</i> spp.	Euphorbiaceae	spurge	mango
<i>Euphorbia geniculata</i>	see <i>Euphorbia heterophylla</i>		
<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	painted spurge	soybean, maize, orchards, upland rice

Table 7 (continued)

Table 7 (continued)

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Euphorbia hirta</i> L. <i>Euphorbia prunifolia</i>	Euphorbiaceae see <i>Euphorbia heterophylla</i>	garden spurge	sugarcane, orchards, vegetables
<i>Fimbristylis dichotoma</i> (L.) Vahl <i>Fimbristylis globulosa</i> (Retz.) Kunth <i>Fimbristylis miliacea</i> (L.) Vahl	Cyperaceae Cyperaceae Cyperaceae	tall-fringe rush globular fimbristylis lesser fimbristylis grass-like fimbristylis umbrella grass	rice rice rice, vegetables
<i>Fuirena ciliaris</i> (L.) Roxb. <i>Fuirena umbellata</i> Rottb.	Cyperaceae	yellowweed	papaya, pineapple, banana
<i>Galinsoga parviflora</i> Cav.	Cyperaceae	tropical bracken	rice
<i>Gleichenia linearis</i> (Burm. f.) C.B. Clarke	Asteraceae	gomphrena	maize, rice, pastures
<i>Gomphrena celosioides</i> Mart.	Gleicheniaceae		orchards, rubber, oil palm
<i>Hedyotis biflora</i>	Amaranthaceae		cowpea
<i>Hedyotis corymbosa</i>	see <i>Hedyotis racemosa</i>		
<i>Hedyotis racemosa</i> Lam.	see <i>Oldenlandia corymbosa</i>		
<i>Heliotropium indicum</i> L.	Rubiaceae	Indian heliotrope, turnsole	rice, pigeon pea
<i>Hemarthria compressa</i> (L.f.) R.Br.	Boraginaceae		rice
<i>Hydrilla verticillata</i> (L.f.) Royle	Poaceae	water thyme, hydrilla	pineapple
<i>Hydrocera triflora</i> (L.) Wight & Arn.	Hydrocharitaceae		rice
<i>Hydrolea glabra</i>	Geraniaceae	marsh henna	rice
<i>Hydrolea zeylanica</i> (L.) Vahl	Hydrophyllaceae		
<i>Hymenachne acutigluma</i> (Steud.) Gilliland	Poaceae		
<i>Hymenachne pseudointerrupta</i>	see <i>Hymenachne acutigluma</i>		
<i>Hyptis brevipes</i> Poit.	Lamiaceae	lesser roundweed	rice, orchards, vegetables, plantations
<i>Hyptis capitata</i> Jacq.	Lamiaceae	knobweed	cocoa, coconut, vegetables, orchards
<i>Imperata cylindrica</i> (L.) P. Beauv.	Poaceae	blady grass, kunai grass, cogongrass	rice, orchards, vegetables, plantations
<i>Ipomoea triloba</i> L.	Convolvulaceae	swamp millet	upland rice
<i>Isachne globosa</i> (Thunb.) O. Ktze.	Poaceae		rice
<i>Ischaemum barbatum</i> Retz.	Poaceae		
<i>Ischaemum ciliare</i>	see <i>Ischaemum indicum</i>		
<i>Ischaemum indicum</i> (Houtt.) Merr.	Poaceae	smutgrass	maize
<i>Ischaemum muticum</i> L.	Poaceae	seashore centipede grass, drought grass	cocoa, coconut, vegetables, orchards, rice, rubber, oil palm
<i>Ischaemum rugosum</i> Salisb.	Poaceae	wrinkle duck-beak, wrinkled grass	rice, pineapple, watermelon, rubber
<i>Jussiaea linifolia</i>	see <i>Ludwigia hyssopifolia</i>		
<i>Jussiaea repens</i>	see <i>Ludwigia adscendens</i>		
<i>Lantana camara</i> L.	Verbenaceae	lantana	durian, pineapple, banana, rubber

Table 7 (continued)

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Leersia hexandra</i> Sw.	Poaceae	southern cutgrass, swamp ricegrass	rice, maize
<i>Lemna minor</i>	see <i>Lemna purpusilla</i>		
<i>Lemna purpusilla</i> Torr.	Lemnaceae		rice
<i>Leptochloa chinensis</i> (L.) Nees	Poaceae	common duckweed red sprangletop, feathergrass	rice, cotton, soybean, maize, sugarcane
<i>Leucas capitata</i>	see <i>Leucas cephalotes</i>		
<i>Leucas cephalotes</i> (Roth) Sprengel	Lamiaceae		rice
<i>Leucas zeylanica</i> (L.) R.Br.	Lamiaceae		tobacco
<i>Limnocharis flava</i> (L.) Buch.	Butomaceae		rice
<i>Lindernia crustacea</i> (L.) F. Muell.	Scrophulariaceae		tobacco, vegetables
<i>Ludwigia adscendens</i> (L.) Hara	Onagraceae	creeping water primrose	rice
<i>Ludwigia hyssopifolia</i> (G. Don) Exell	Onagraceae	water primrose	rice, cotton, tobacco, vegetables
<i>Ludwigia octovalvis</i> (Jacq.) Raven	Onagraceae	willow primrose	rice
<i>Lygodium circinnatum</i> (Burm. f.) Sw.	Schizaceae		cocoa, coconut, orchards, oil palm, rubber
<i>Lygodium flexuosum</i> (L.) Sw.	Schizaceae		pineapple
<i>Lygodium scandens</i> (L.) Sw.	Fabaceae	phasey bean	rice
<i>Macroptilium lathyroides</i> (L.) Urb.	see <i>Marsilea minuta</i>		
<i>Marsilea crenata</i>	Marsileaceae	water clover, clover fern	rice
<i>Marsilea minuta</i> L.	Marsileaceae		rice
<i>Marsilea quadrifolia</i> L.	Melastomataceae		orchards, pineapple, cocoa, coconut, oil palm, rubber, mulberry
<i>Melastoma malabathricum</i> L.		straits rhododendron	
<i>Melochia concatenata</i>	see <i>Melochia corchorifolia</i>		
<i>Melochia corchorifolia</i> L.	Sterculiaceae	wire bush, crabs eggs	rice, tobacco, upland rice
<i>Mentha arvensis</i> L.	Lamiaceae		groundnut, pineapple
<i>Microcarpaea minima</i> (Koen. ex Retz.) Merr.	Scrophulariaceae		rice
<i>Mikania micrantha</i> Kunth	Asteraceae	mile-a-minute weed	cocoa, coconut, orchards, rubber, oil palm, vegetables, rice
<i>Mimosa invisa</i> Mart. ex Colla	Fabaceae	giant sensitive plant	
<i>Mimosa pigra</i> L.	Fabaceae	giant mimosa, thorny sensitive plant	orchards, rice
<i>Mimosa pudica</i> L.	Fabaceae	sensitive plant	rice
<i>Mitracarpus villosus</i> (Sw.) Cham. & Schldl. ex DC	Rubiaceae	groundnut, plantations	orchards, vegetables, maize, tea, rice
<i>Monochoria hastata</i> (L.) Solms	Pontederiaceae	monochoria	rice
<i>Monochoria vaginalis</i> (Burm.f.) Presl	Pontederiaceae	pickerel weed, monochoria	rice

Table 7 (continued)

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Murdannia nudiflora</i> (L.) Brenan	Commelinaceae	spreading dayflower	rice, vegetables, tobacco
<i>Najas graminea</i> Del.	Najadaceae	bushy pond weed	rice
<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	sacred lotus	rice
<i>Nephrolepis biserrata</i> (Sw.) Schott	Nephrolepidaceae	broad sword fern	orchards, rubber, oil palm
<i>Nymphaea lotus</i> L.	Nymphaeaceae		rice
<i>Nymphoides indica</i> (L.) O. Kuntze	Gentianaceae	water snowflake	rice
<i>Odenlandia corymbosa</i> L.	Rubiaceae		orchards, vegetables
<i>Oryza rufipogon</i> Griff.	Poaceae	red rice, wild rice	rice
<i>Ottelia alismoides</i> (L.) Pers.	Hydrocharitaceae		rice
<i>Ottochloa nodosa</i> (Kunth) Dandy	Poaceae	slender panic grass	durian, cocoa, coconut, orchards, rubber, oil palm
<i>Oxalis corymbosa</i> DC.	Oxalidaceae	pink shamrock, lilac oxalis	vegetables
<i>Panicum amplexicaule</i>	see <i>Hymenachne acutigluma</i>		
<i>Panicum bisulcatum</i> Thunb.	Poaceae	blackseed panic	pineapple
<i>Panicum brevifolium</i> L.	Poaceae	short-leaved panic grass	pineapple, watermelon, plantations
<i>Panicum cambogense</i> Balansa	see <i>Cyrtococcum oxyphyllum</i>		rice
<i>Panicum pillipes</i>	Poaceae	torpedo grass, creeping panic grass	soybean, groundnut, vegetables, plantations, tobacco
<i>Panicum repens</i> L.	Poaceae	scrambling panic grass	starfruit, mangosteen, orchards, oil palm
<i>Panicum sarmentosum</i> Roxb.	Poaceae		
<i>Panicum trigonum</i>	see <i>Cyrtococcum trigonum</i>		
<i>Paspalum commersonii</i>	see <i>Paspalum scrobiculatum</i>		
<i>Paspalum conjugatum</i> Berg.	Poaceae	sourgrass, T-grass	vegetables, orchards, cocoa, coconut, mulberry
<i>Paspalum distichum</i> L.	Poaceae	seashore paspalum	rice
<i>Paspalum paspaloides</i>	see <i>Paspalum distichum</i>		
<i>Paspalum scrobiculatum</i> L.	Poaceae	ditch millet, bull paspalum	rice, orchards, plantations
<i>Paspalum vaginatum</i> Sw.	Poaceae		rice
<i>Passiflora foetida</i> L.	Passifloraceae	stinking passionflower, wild passionfruit	banana, cocoa, coconut, vegetables, plantations
<i>Pennisetum</i> spp.	Poaceae		soybean, sorghum
<i>Pennisetum polystachyon</i> (L.) Schult.	Poaceae	feather pennisetum, mission grass	pineapple, banana, rubber, oil palm, orchards
<i>Pennisetum purpureum</i> K. Schum.	Poaceae	napier grass, elephant grass	rice, plantations
<i>Pentapetes phoenicia</i> L.	Sterculiaceae		rice
<i>Phaseolus lathyroides</i>	see <i>Macroptilium lathyroides</i>		
<i>Phyllanthus fraternus</i> Webster	Euphorbiaceae	niruri	rice, cocoa, coconut, tobacco etc

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Phyllanthus niruri</i>	see <i>Phyllanthus fraternus</i>		
<i>Physalis angulata</i> L.	Solanaceae		sunflower
<i>Physalis minima</i> L.	Solanaceae		orchards, vegetables
<i>Pistia stratiotes</i> L.	Araceae		
<i>Polygonum pulchrum</i>	see <i>Polygonum tormentosum</i>		rice, water
<i>Polygonum tormentosum</i> Willd.	Polygonaceae		
<i>Portulaca oleracea</i> L.	Portulacaceae		rice
<i>Pteridium esculentum</i> (Forst.f.) Cockayne	Dennstaedtiaceae		radish, sorghum, rice, vegetables
<i>Pteris vittata</i> L.	Pteridaceae		
<i>Pueraria phaseoloides</i> (Roxb.) Benth.	Fabaceae		banana, guava, pineapple, oil palm
<i>Richardia brasiliensis</i> (Moq.) Gomez	Rubiaceae		pineapple
<i>Rotala indica</i> (Willd.) Koehne	Lythraceae		bean
<i>Rottboellia cochinchinensis</i> (Lour.) W.D. Clayton	Poaceae	itchgrass	cowpea
<i>Rottboellia exaltata</i>	see <i>Rottboellia cochinchinensis</i>		rice
<i>Sacciolepis indica</i> (L.) A. Chase	Poaceae	Indian cupscale grass	rice
<i>Sagittaria guayanensis</i> H.B.K.	Alismataceae		rice
<i>Sagittaria trifolia</i> L.	Alismataceae	old world arrowhead	rice
<i>Salvinia cucullata</i> Roxb. ex Bory	Salviniaceae		rice, water
<i>Salvinia molesta</i> D.S. Mitchell	Salviniaceae	salvinia	rice, water
<i>Scirpus grossus</i> L.f.	Cyperaceae		rice
<i>Scirpus juncoides</i> Roxb.	Cyperaceae	greater club rush	rice
<i>Scirpus lateriflorus</i> Gmelin	Cyperaceae		
<i>Scirpus maritimus</i> L.	Cyperaceae		rice
<i>Scirpus supinus</i> L.	Cyperaceae		rice
<i>Scleria bancana</i> Miq.	Cyperaceae		papaya, pineapple, banana, rice
<i>Scleria ciliaris</i> Nees	Cyperaceae		papaya, pineapple, banana
<i>Scleria levis</i> Retz.	Cyperaceae		papaya, banana
<i>Scleria sumatrensis</i> Retz.	Cyperaceae		banana, rice, plantations
<i>Scoparia dulcis</i> L.	Scrophulariaceae		sorghum
<i>Setaria geniculata</i> (Lam.) P. Beauv.	Poaceae	knotroot foxtail, slender pigeongrass, bristlegrass	rice
<i>Senna obtusifolia</i> (L.) Irwin & Barneby	Fabaceae		
<i>Sida acuta</i> Burm.f.	Malvaceae	broom weed, southern sida, spinyhead sida	plantations
<i>Solanum nigrum</i> L.	Solanaceae	blackberry nightshade	vegetables

Table 7 (continued)

Table 7 (continued)

Scientific Name	Family	English Common Name	Principal Crops Attacked
<i>Spermacoce hispida</i>	see <i>Borreria articulata</i>		
<i>Sphaeranthus africanus</i> L.	Asteraceae		rice
<i>Sphenoclea zeylanica</i> Gaertn.	Sphenocleaceae		rice
<i>Spilanthes filicaulis</i> (Schum. & Thonn.) C.D. Adams	Asteraceae	gooseweed	sorghum, pigeon pea
<i>Spirodela polyrhiza</i> (L.) Schleid.	Lemnaceae		rice
<i>Sporobolus indica</i> var. <i>fertilis</i> (Steudel) W. Clayton	Poaceae	rat's tail grass	cocoa, coconut, pepper, tea, nutmeg
<i>Sporobolus indica</i> var. <i>diander</i> (Retz.) P. Beauv.	Poaceae	tussocky sporobolus	pineapple, starfruit, plantations
<i>Stachytarpheta indica</i> (L.) Vahl	Verbenaceae	blue rat's tail, light blue snakeweed	pineapple, starfruit, banana
<i>Stenochlaena palustris</i> (Burm. f.) Bedd.	Blechnaceae	giant fern	cocoa, coconut, pineapple, oil palm
<i>Striga asiatica</i> (L.) O. Kuntze	Scrophulariaceae	witchweed	rice
<i>Tetracera indica</i> (Houtt. ex Christm. & Panz.) Merr.	Dilleniaceae	fire weed	cocoa, coconut, rubber, oil palm
<i>Trianthema portulacastrum</i> L.	Aizoaceae	giant pigweed, black pigweed	cotton
<i>Tridax procumbens</i> L.	Asteraceae	tridax	cotton, vegetables
<i>Typha angustifolia</i> L.	Typhaceae	narrow-leaf cat tail, bulrush	rice
<i>Urena lobata</i> L.	Malvaceae	pink burr	legumes, maize
<i>Utricularia aurea</i> Lour.	Lentiburiaceae	bladderwort	rice
<i>Vernonia cinerea</i> (L.) Less.	Asteraceae	little ironweed, vernonia	orchards, mulberry
<i>Xanthium strumarium</i> L.	Asteraceae	cocklebur	rice
<i>Zoysia matrella</i> (L.) Merr.	Poaceae	siglap grass, Korean grass	cocoa, coconut

Table 8

The distribution and importance of major weeds in Southeast Asia (231 species).

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Abutilon indicum</i>	+	++	•	•	•				•	•
<i>Achyranthes aspera</i>	+	•			•	•			+	+
<i>Aeschynomene aspera</i>	•	+			•				•	+
<i>Aeschynomene indica</i>	•	+	•	++	•	•			•	++
<i>Ageratina adenophora</i>		+						+	++	•
<i>Ageratum conyzoides</i>	+++	+++	+	+	+	++	++	+	+	++
<i>Alternanthera philoxeroides</i>	•	+	•		+				•	
<i>Alternanthera sessilis</i>	+	+	•	•	+	+	++		•	++
<i>Amaranthus spp.</i>		++						•		
<i>Amaranthus lividus</i>		•				++			•	
<i>Amaranthus spinosus</i>	+++	+++	+	+	+	++	++		+	+++
<i>Amaranthus viridis</i>	+	+++	+	+	+	•	+		•	++
<i>Asystasia gangetica</i>						++	++		•	•
<i>Asystasia intrusa</i>						++	++			
<i>Axonopus compressus</i>	•	+			•	+	++	•	+	+
<i>Azolla pinnata</i>	•	+	+	+	+	++		•	•	+
<i>Bacopa monnieri</i>			•		•	+			•	•
<i>Bidens pilosa</i>	+	++	+	+	+	•			++	++
<i>Blechnum orientale</i>						+	+	++		
<i>Boerhavia diffusa</i>	+	++					++			++
<i>Borreria spp.</i>	•	+						•		
<i>Borreria articularis</i>	+				•				•	•
<i>Borreria laevis</i>	•	•				+	++		+	+
<i>Borreria latifolia</i>	•					++	++			++
<i>Bothriochloa pertusa</i>	+	•			•					
<i>Brachiaria distachya</i>	•				•	+			•	++
<i>Brachiaria mutica</i>	•		•	•	•	++	+		+	++
<i>Brachiaria paspaloides</i>	•					++	++			
<i>Brachiaria reptans</i>	•	++			+	•			•	•
<i>Bulbostylis barbata</i>					•	+	+		•	•
<i>Calopogonium mucunoides</i>	+					+	+		•	++
<i>Cardiospermum halicacabum</i>	+				•	•			•	•
<i>Cassia tora</i>	+	+	•	•	+	•	•		•	+
<i>Celosia argentea</i>	++	•	•	•	•	•			++	++

Table 8 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Cenchrus echinatus</i>		+	+	+	+					+
<i>Centotheca lappacea</i>	•	•	•	•	•	++	++	•	•	•
<i>Centrosema pubescens</i>									•	++
<i>Ceratophyllum demersum</i>		+	•		•	+			•	•
<i>Ceratopteris pteroides</i>	•					+		+		•
<i>Chara zeylanica</i>		+	+	+	+				+	
<i>Chloris inflata</i>	+	++		•	++	•	+		•	++
<i>Chromolaena odorata</i>	++	++	++	++	++	++			++	++
<i>Cleome rutidosperma</i>	•	+		•	•	+	++		•	++
<i>Cleome viscosa</i>	+	•		•	•	+	++		•	++
<i>Clidemia hirta</i>						++	++	+	•	
<i>Commelinia benghalensis</i>	++	+++			+	•			++	++
<i>Commelinina diffusa</i>	•	++	•		•	•	++		++	++
<i>Convolvulus arvensis</i>	+									•
<i>Corchorus olitorius</i>	+	•								+
<i>Crotalaria pallida</i>	•	++	+	+	+					+
<i>Croton hirtus</i>						•				•
<i>Cyclosorus aridus</i>						++	++			+
<i>Cynodon dactylon</i>	++	++	+	+	+++	++	++		+++	++
<i>Cyperus aromaticus</i>						+	+			
<i>Cyperus babakan</i>	•	•	•	•	•	+				•
<i>Cyperus brevifolius</i>	•	•	•	•	•	+	+			+
<i>Cyperus compactus</i>	•	•	•	•	•	+	+			+
<i>Cyperus compressus</i>	+	•	•	•	•	++	++			•
<i>Cyperus difformis</i>	+	+	+	+	++	++	++			+
<i>Cyperus diffusus</i>			•			+	+			
<i>Cyperus digitatus</i>	•	•	•	•	•	++	++			•
<i>Cyperus haspan</i>	•	•	•	•	•	++	++			•
<i>Cyperus imbricatus</i>	•	•	•	•	•	•	+			•
<i>Cyperus iria</i>	++	++	+++	++	++	++	++	++	++	++
<i>Cyperus kyllingia</i>		•	•	•	•	++	++	•	•	•
<i>Cyperus odoratus</i>	•	•	•	•	•	•				•
<i>Cyperus pilosus</i>	•	•	•	•	•	+				•
<i>Cyperus platystylis</i>	•	•	•	•	•	+				•
<i>Cyperus polystachyos</i>	•	•	•	•	•	+				•
<i>Cyperus pulcherrimus</i>		+			•					•

Table 8 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Cyperus rotundus</i>	+++	+++	++	++	+++	++	+++	+++	+++	+++
<i>Cyperus zollingeri</i>						++	+	+		•
<i>Cyrtococcum accrescens</i>	•	•				+	+		•	•
<i>Cyrtococcum oxyphyllum</i>						+				•
<i>Cyrtococcum trigonum</i>						+				
<i>Dactyloctenium aegyptium</i>	++	++	•		•	•	+		+	++
<i>Desmodium triflorum</i>		•				+	++	•	•	+
<i>Digitaria ciliaris</i>	++	++	+	+++	++	++	++		+++	++
<i>Digitaria fuscescens</i>						+	+		•	
<i>Digitaria longiflora</i>	•	•	•	•	•				•	++
<i>Digitaria sanguinalis</i>	+	•			•	•	++	•	•	++
<i>Digitaria violascens</i>	•	•	•	•	•	++	++		•	•
<i>Echinochloa</i> sp.		+++								
<i>Echinochloa colonia</i>	+++	+++	+++	++	+++	++	++	+++	+++	+++
<i>Echinochloa crusgalli</i>	•	+++	+	++	+++	++	++	+	+++	+++
<i>Echinochloa glabrescens</i>		•	•	++	•	•			•	++
<i>Echinochloa oryzoides</i>	•	•				•				++
<i>Eclipta prostrata</i>	+	++	•	•	++	++	+		+	++
<i>Eichhornia crassipes</i>	++	+++	++	++	+	++	•	++	++	+++
<i>Eleocharis dulcis</i>	•	+	•	•	•	+	+		•	
<i>Eleocharis retroflexa</i>	•	•	•	•	•	+			•	
<i>Eleocharis variegata</i>					•		+		•	
<i>Eleusine coracana</i>	•	+				+				•
<i>Eleusine indica</i>	++	++	++	++	+++	++	+++	+	+++	++
<i>Emilia sonchifolia</i>	+	•		•	•	+	++	•	•	+
<i>Enydra fluctuans</i>	+	•				•	+			
<i>Eragrostis japonica</i>						+			•	•
<i>Eragrostis tenella</i>	+	+			•	+	++		•	•
<i>Eragrostis unioloides</i>	+	•			•	++	•		•	•
<i>Erechtites hieracifolia</i>						+	+			
<i>Erechtites valerianaefolia</i>						++	+			
<i>Erigeron sumatrensis</i>	•					++	+		•	•
<i>Eriocaulon truncatum</i>	•		•	•	•	+	+		•	•
<i>Euphorbia</i> spp.	+	++							•	+
<i>Euphorbia heterophylla</i>	+	+++	+	+	+	++	+		•	+
<i>Euphorbia hirta</i>	•	++	+	+	+	+	+		•	++

Table 8 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Fimbristylis dichotoma</i>	++	+	++		++	++	++		+++	++
<i>Fimbristylis globulosa</i>	•	•	•	•	•	++	++		•	•
<i>Fimbristylis miliacea</i>	+++	+	+	+++	++	+++	++	+++	+++	++
<i>Fuirena ciliaris</i>	•	•	•	•	•	+			•	•
<i>Fuirena umbellata</i>				•	•	++			•	•
<i>Galinsoga parviflora</i>		•						•		+++
<i>Gleichenia linearis</i>						++	++	++	•	
<i>Gomphrena celosioides</i>	+	++			+		•		•	+
<i>Hedyotis racemosa</i>	++	•							•	•
<i>Heliotropium indicum</i>	+	+	•	•	+	•	•	•	•	++
<i>Hemarthria compressa</i>	•				+					
<i>Hydrilla verticillata</i>	•	++	•	•	•	+	+	•	+	+
<i>Hydrocera triflora</i>	•	•				+				
<i>Hydrolea zeylanica</i>	+	•	•		•				•	•
<i>Hymenachne acutigluma</i>	•	•				++		++	•	+
<i>Hyptis brevipes</i>		+			•	+	++		•	++
<i>Hyptis capitata</i>		+			+	++	++		•	++
<i>Imperata cylindrica</i>	+++	+++	++	++	+++	+++	+++	+	+++	+++
<i>Ipomoea triloba</i>	+	•		•					•	+++
<i>Isachne globosa</i>	•	•	•		•	++	+		•	•
<i>Ischaemum barbatum</i>								+++		
<i>Ischaemum indicum</i>	•	•	•	•	+++	•	•		•	+
<i>Ischaemum muticum</i>						++	++			+
<i>Ischaemum rugosum</i>	+	•	•	•	•	++	+	++	++	++
<i>Lantana camara</i>	+	+		•	•	+	•	•	•	++
<i>Leersia hexandra</i>	•	+	+	+	+	++	+	•	+	+
<i>Lemna purpusilla</i>		+	+	+	+	++		+	•	•
<i>Leptochloa chinensis</i>	+++	++	•	•	++	+++			++	++
<i>Leucas cephalotes</i>	+++									
<i>Leucas zeylanica</i>	++					+	++			+
<i>Limnocharis flava</i>	•	+	•	•	•	++	+	+	•	
<i>Lindernia crustacea</i>					•	++	++		•	•
<i>Ludwigia adscendens</i>	+	+	•	•	•	++			+	++
<i>Ludwigia hyssopifolia</i>	+++	++	•	•	•	++	•	•	•	+
<i>Ludwigia octovalvis</i>	+	•	•	•	•	•	+		+++	++
<i>Lygodium circinnatum</i>								+		

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Lygodium flexuosum</i>					•	++	++		•	+
<i>Lygodium scandens</i>					•	+				
<i>Macroptilium lathyroides</i>		•	•	•	•	•			•	+
<i>Marsilea minuta</i>	+	+	+	+	+	++			+	++
<i>Marsilea quadrifolia</i>	•	•	•	•	++	•		•	•	+
<i>Melastoma malabathricum</i>		+	+	•	+	++	+	+++	+	+
<i>Melochia corchorifolia</i>	+	•		•	•	++			•	+
<i>Mentha arvensis</i>	+				‡				•	
<i>Microcarpaea minima</i>						+			•	
<i>Mikania micrantha</i>		•				++	++	+	+	+
<i>Mimosa invisa</i>	++	++	++	+	++	++	++	+	+	++
<i>Mimosa pigra</i>	++	+++	++	+	+	++	++	+	++	++
<i>Mimosa pudica</i>	+++	+	•	•	+	++	++	+	++	++
<i>Mitracarpus villosus</i>	+++	•				•(†)			++	++
<i>Monochoria hastata</i>	•	•	•	•	+				+	•
<i>Monochoria vaginalis</i>	++	++	+++	+++	++	++	++	+++	++	++
<i>Murdannia nudiflora</i>	+	•			•	+		•	+	++
<i>Najas graminea</i>	•	+	+	•	•	+			•	+
<i>Nelumbo nucifera</i>		+	+	•	+	+			•	•
<i>Nephrolepis biserrata</i>							++	++		++
<i>Nymphaea lotus</i>	•	+	+	•	+	++	+	+		
<i>Nymphoides indica</i>	•	+	•	•	•	+			•	
<i>Oldenlandia corymbosa</i>	+	•	•	•	•	++	++	•	•	+
<i>Oryza rufipogon</i>	++	+	•	•	•	+			+	•
<i>Otelia alismoides</i>	•	+	•	•	•	+			•	+
<i>Ottochloa nodosa</i>	+	•				++			•	•
<i>Oxalis corymbosa</i>	+					++	++		•	
<i>Panicum bisulcatum</i>					++					
<i>Panicum brevifolium</i>						+				
<i>Panicum cambogiense</i>		+		•						•
<i>Panicum repens</i>	+	++	•	•	++	++	++	+	++	++
<i>Panicum sarmentosum</i>						++	++		•	
<i>Paspalum conjugatum</i>	•	•	•	•	++	++	++	+	++	++
<i>Paspalum distichum</i>	•	•			•	•	+	+	++	++
<i>Paspalum scrobiculatum</i>	•	•	•	•	•	++	++	++	•	++
<i>Paspalum vaginatum</i>					+	++				•

Footnote (†) +++ in Sarawak.

Table 8 (continued)

Table 8 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Passiflora foetida</i>	+	+	+		+	++	+	++	•	+
<i>Pennisetum</i> spp.	++	++	++	++	++	++			+	
<i>Pennisetum polystachyon</i>	+	+	+	+	+	++			++	++
<i>Pennisetum purpureum</i>	+	+	+	+	+	+	+		+	+
<i>Pentapetes phoenicia</i>	+		•		•	•			•	
<i>Phyllanthus fraternus</i>	+	+			•	++			•	•
<i>Physalis angulata</i>	+	+	•	•	•	•			•	•
<i>Physalis minima</i>	•	•	•			+	+	•	•	•
<i>Pistia stratiotes</i>	+	++	++	++	++	+	•	+	+	++
<i>Polygonum tomentosum</i>	+	•	•		•	+			•	+
<i>Portulaca oleracea</i>	+	++		•	+	+	+		+	++
<i>Pteridium esculentum</i>	+					+	+	+++		
<i>Pteris vittata</i>						+	+	•	•	•
<i>Pueraria phaseoloides</i>	+	++					++		•	+
<i>Richardia brasiliensis</i>	++	+++							•	
<i>Rotala indica</i>	•	•	•	•	•	++	++		•	+
<i>Rottboellia cochinchinensis</i>	+	++	+		+	+			+++	+++
<i>Sacciolepis indica</i>	•	•			•	+	+		•	•
<i>Sagittaria guayanensis</i>	•	•	•	•	•	++	+		•	
<i>Sagittaria trifolia</i>	•	•	•	•	•	•				+
<i>Salvinia cucullata</i>	++	+	+	+	+				•	
<i>Salvinia molesta</i>						++	+		+	++
<i>Scirpus grossus</i>	++	•	•	•	•	++	++		•	+
<i>Scirpus juncoides</i>	++	•	•	•	•	++	++		+	•
<i>Scirpus lateriflorus</i>	•	•	•	•	•	•	•		•	++
<i>Scirpus maritimus</i>	•	•	•	•	•	•	•		•	++
<i>Scirpus supinus</i>	•	•	•	•	•	++	++		•	+
<i>Scleria bancana</i>					•	+	+	++		
<i>Scleria ciliaris</i>						+				
<i>Scleria levis</i>	•	•	•	•	•	+			•	+
<i>Scleria sumatrensis</i>					•	++	+	++		
<i>Scoparia dulcis</i>	+	•	•	•	•	+			•	+
<i>Senna obtusifolia</i>	•	•							•	++
<i>Setaria geniculata</i>	•	+		•		+	•		•	++
<i>Sida acuta</i>	+	+	+	+	+	•	+		+	++
<i>Solanum nigrum</i>	•	+		•		+	+		•	•

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Sphaeranthus africanus</i>		•			•	+			•	+
<i>Sphenoclea zeylanica</i>	+	++	+	++	+	+++		+	+	++
<i>Spilanthes filicaulis</i>	+++									
<i>Spirodela polyrhiza</i>		+			•	+			•	•
<i>Sporobolus indicus</i> var. <i>fertilis</i>						+				+
<i>Sporobolus indicus</i> var. <i>diander</i>	•				•	+	++		•	•
<i>Stachytarpheta indica</i>		•				+	+	•	+	++
<i>Stenochlaena palustris</i>						++	++	+++	•	•
<i>Striga asiatica</i>	+	+				•	+		++	•
<i>Tetracera indica</i>						+	+	•	•	•
<i>Trianthem portulacastrum</i>	+++	++		•	•				•	+++
<i>Tridax procumbens</i>	+	++		•	•	+	++		•	++
<i>Typha angustifolia</i>	++		+	+	+	+	+		+	+
<i>Utricularia aurea</i>	+	•	•	•	•	++			•	•
<i>Urena lobata</i>		•						•	•	++
<i>Vernonia cinerea</i>	•	•	•	•	•	+	++		•	++
<i>Zoysia matrella</i>	++	•				+	++	•		•

Table 8 (continued)

**Table 9** The distribution and importance of the most important weeds in Southeast Asia (140 species).

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Aeschynomene indica</i>	•	+	•	++	•	•			•	++
<i>Ageratum conyzoides</i>	++	+++	+	+	+	++	++	+	+	++
<i>Alternanthera sessilis</i>	+	+	•	•	+	+	++		•	++
<i>Amaranthus spinosus</i>	++	+++	+	+	+	++	++		+	++
<i>Amaranthus viridis</i>	+	+++	+	+	+	•	+		•	++
<i>Asystasia gangetica</i>						++	++		•	
<i>Asystasia intrusa</i>						++	++			
<i>Axonopus compressus</i>	•	+			•	+	++	•	+	+
<i>Azolla pinnata</i>	•	+	+	+	+	++		•	•	+
<i>Bidens pilosa</i>	+	++	+	+	+	•			++	++
<i>Boerhavia diffusa</i>	+	++					++			++
<i>Borreria laevis</i>	•	•				+	++		+	+
<i>Borreria latifolia</i>	•					++	++		++	++
<i>Brachiaria mutica</i>	•	•	•	•	•	++	++		+	++
<i>Brachiaria paspaloides</i>	•					++	++		•	
<i>Celosia argentea</i>	++	•	•	•	•	•			++	++
<i>Cenchrus echinatus</i>		+	+	+	+					+
<i>Centotheca lappacea</i>	•	•	•	•	•	++	++	•	•	
<i>Centrosema pubescens</i>									•	++
<i>Chara zeylanica</i>	+	+	+	+	+				+	
<i>Chloris inflata</i>	+	++		•	++	•	+		•	++
<i>Chromolaena odorata</i>	++	++	++	++	++	++	++		+	++
<i>Cleome rutidosperma</i>	•	+		•	•	++	++		•	++
<i>Cleome viscosa</i>	+	•		•	•	+	++		•	++
<i>Clidemia hirta</i>						++	++	+	•	
<i>Commelinopsis benghalensis</i>	++	+++			+	•			+	++
<i>Commelinopsis diffusa</i>	•	++	•		•	•			++	++
<i>Crotalaria pallida</i>	•	++	+	+	+		+			+
<i>Cynodon dactylon</i>	++	++	+	+	++	++	++		++	++
<i>Cyperus brevifolius</i>	•	•	•	•	•	+	+		+	++
<i>Cyperus compactus</i>	+		•	•			+	+		++
<i>Cyperus compressus</i>	+	•	•	•	•	++	++		•	++
<i>Cyperus difformis</i>	+	+	+	++	++	++	++		+	++
<i>Cyperus imbricatus</i>							+	++		++

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Cyperus iria</i>	++	++	+++	+	++	++	+		+	++
<i>Cyperus kyllingia</i>	•	•	•	•	++	++	+	•	•	++
<i>Cyperus rotundus</i>	+++	+++	++	++	++	++	+++		+++	+++
<i>Dactyloctenium aegyptium</i>	++	++	•	++	•	•	+		+	++
<i>Digitaria ciliaris</i>	++	++	+	++	++	++	++		+++	++
<i>Digitaria longiflora</i>	•	•	•	•	•			•	•	+++
<i>Digitaria sanguinalis</i>							++			++
<i>Digitaria violascens</i>	•	•	•	•	•	++	++		•	•
<i>Echinochloa</i> sp.		+++								
<i>Echinochloa colona</i>	++	+++	+++	+	++	++	++		+++	+++
<i>Echinochloa crusgalli</i>	•	+++	+	++	++	++	++	+	+++	+++
<i>Echinochloa glabrescens</i>		•	•	++	•	•	•		•	++
<i>Echinochloa oryzoides</i>	•	•				•				+++
<i>Eclipta prostrata</i>	+	++	•	•	++	++	++		+	++
<i>Eichhornia crassipes</i>	++	+++	++	++	+	++	•	++	++	+++
<i>Eleusine indica</i>	++	++	++	++	++	++	++		++	+++
<i>Emilia sonchifolia</i>	+	•			•	+	++	•	•	+
<i>Eragrostis tenella</i>	+	+			•	+	++		•	•
<i>Euphorbia heterophylla</i>	+	+++	+	+	+	++			•	+
<i>Euphorbia hirta</i>	•	++	+	+	+	+	++		•	++
<i>Fimbristylis dichotoma</i>	++	+	++		++	++	++		++	++
<i>Fimbristylis globulosa</i>	•	•	•	•	•	++	++		•	•
<i>Fimbristylis miliacea</i>	+++	+	+	++	++	++	++		++	++
<i>Galinsoga parviflora</i>	•							•		+++
<i>Gleichenia linearis</i>						++	++	++	•	
<i>Gomphrena celosioides</i>	+	++			+				•	+
<i>Heliotropium indicum</i>	+	+	•	•	+	•	•	•	•	++
<i>Hydrilla verticillata</i>	•	++	•	•	•	+	+		+	+
<i>Hymenachne actigluma</i>						++	++			+
<i>Hyptis brevipes</i>	+				•	+	++		•	++
<i>Hyptis capitata</i>	+				+	++	++		•	++
<i>Imperata cylindrica</i>	+++	+++	++	++	+++	++	++	+	++	+++
<i>Ipomoea triloba</i>	+	•		•					•	+++
<i>Ischaemum barbatum</i>		•						++		
<i>Ischaemum indicum</i>	•	•	•	•	+++	•	•		•	+
<i>Ischaemum muticum</i>						++	++			+

Table 9 (continued)

Table 9 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Ischaemum rugosum</i>	+	•	•	•	•	++	+		++	++
<i>Lantana camara</i>	+	+		•	•	+	•	•	•	++
<i>Leersia hexandra</i>	•	+	+	+	+	++	+	•	+	+
<i>Lemna purpusilla</i>	+	+	+	+	+	++	+	+	•	•
<i>Leptochloa chinensis</i>	+++	++	•	•	++	+++			++	++
<i>Leucas cephalotes</i>	+++									
<i>Leucas zeylanica</i>	++						+	++		+
<i>Limnocharis flava</i>	•	+	•	•	•	++	+	+	•	
<i>Lindernia crustacea</i>							++		•	•
<i>Ludwigia adscendens</i>	+	+	•	•	•	++	++		•	++
<i>Ludwigia hyssopifolia</i>	+++	++	•	•	•	++	•	•	•	+
<i>Ludwigia octovalvis</i>	+	•	•	•	•	++	+		+	++
<i>Lygodium flexuosum</i>							++			+
<i>Marsilea minuta</i>	+	+	+	+	+	+++			++	++
<i>Marsilea quadrifolia</i>	•	•	•	•					•	+
<i>Melastoma malabathricum</i>		+	+				++		+	+
<i>Melochia corchorifolia</i>	+	•			•	++	++		•	+
<i>Mikania micrantha</i>		•					++	++		+
<i>Mimosa invisa</i>	++	++	++	+	++	++	++		++	++
<i>Mimosa pigra</i>	++	++	++	+	+	++	++		++	++
<i>Mimosa pudica</i>	++	+	•	•	+	++	++	+	++	++
<i>Mitracarpus villosus</i>	+++	•								++
<i>Monochoria hastata</i>										+
<i>Monochoria vaginalis</i>	++	++	+++	+++	+	•(†)	+	+++	+++	+++
<i>Murdannia nudiflora</i>	+	•				•	+		•	+
<i>Najas graminea</i>	•	+	+	•	•	++			•	+
<i>Nephrolepis biserrata</i>							++	++		++
<i>Nymphaea lotus</i>	•	+	+	•	+	++	+	+		
<i>Oldenlandia corymbosa</i>	+	•		•	•	++	++	•	•	+
<i>Oryza rufipogon</i>	++	+	•	•	•	+				•
<i>Ottochloa nodosa</i>	++	•							•	
<i>Oxalis corymbosa</i>	+						++			
<i>Panicum bisulcatum</i>										
<i>Panicum repens</i>	+	++	•	•	+++	++	++	+	++	++
<i>Panicum sarmentosum</i>							++		•	
<i>Paspalum conjugatum</i>	•	•	•	•	+++	+++	++	+	++	++

(†) +++ in Sarawak

Table 9 (continued)

Scientific Name	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
<i>Paspalum distichum</i>	•	•			•	•			+++	++
<i>Paspalum scrobiculatum</i>	•	•	•	•	•	++	++	++	•	+
<i>Passiflora foetida</i>	+	+	+		+	++	+	+	•	+
<i>Pennisetum</i> spp.	++	++	++	++	++	++	+	++	+	+
<i>Pennisetum polystachyon</i>	+	+	+	+	+	++	+	++	++	++
<i>Pennisetum purpureum</i>	+	+	+	+	+	+	+	+	+	+
<i>Pistia stratiotes</i>	+	++	++	++	++	+	•	+	+	++
<i>Portulaca oleracea</i>	+	++		•	+	+	+	+	+	++
<i>Pteridium esculentum</i>	+	+						+++		
<i>Pueraria phaseoloides</i>	+	++					++		•	+
<i>Richardia brasiliensis</i>	++	++							•	
<i>Rotala indica</i>	•	•	•	•	++	++			•	+
<i>Rottboellia cochinchinensis</i>	+	+	+		+	++			++	++
<i>Sagittaria guayanensis</i>	•	•	•	•	•	++	+		•	
<i>Salvinia cucullata</i>		+	+	+	+	•			•	
<i>Salvinia molesta</i>		+				++	+		+	++
<i>Scirpus grossus</i>	++	•	•	•	+	++			•	•
<i>Scirpus juncoides</i>	++	•	•	•	•	++			+	+
<i>Scirpus maritimus</i>	•	•	•	•	•	•			•	
<i>Scirpus supinus</i>							++			++
<i>Scleria sumatrensis</i>							+			
<i>Senna obtusifolia</i>	•	•			•	•			•	++
<i>Sida acuta</i>	+	+	+	+	+	++	+		+	++
<i>Sphenoclea zeylanica</i>	+	+	+	+	+	++				++
<i>Spilanthes filicaulis</i>	+++								++	•
<i>Stachytarpheta indica</i>			•						•	
<i>Stenochlaena palustris</i>								++		•
<i>Striga asiatica</i>	+	+				++	+		++	
<i>Trianthema portulacastrum</i>	+++	++		•	•	++			•	++
<i>Tridax procumbens</i>	+	++		•	•	+	++		•	++
<i>Typha angustifolia</i>	+	+	+	+	+	+	+			
<i>Urena lobata</i>	•	•			•					•
<i>Vernonia cinerea</i>	•	•	•	•	•	+	++		•	++
<i>Zoysia matrella</i>	++	•				+	++	•		•

**Table 10**

In this table the 140 most important weeds listed in table 9 are arranged alphabetically in 5 groups according to the combined ratings they score for the region. The 40 species with the highest ratings (those with 10 and above) should be considered first for appropriateness as targets for classical biological control, followed next by the 78 species recording scores from 5 to 9. There are also 22 species listed from the lower end of the combined ratings scale. However these have all been rated by one country as +++ or by two countries as ++. Whereas not of high regional importance, their local rating might well be justification for the particular countries concerned seeking support for a classical biological control approach for species from this group.

**Table 10** Aggregated ratings for the most important weeds.

(a) Ratings 3 or 4 (but only if +++ in one country or ++ in two countries)

<i>Brachiaria paspaloides</i>	4	<i>Ischaemum indicum</i>	4
<i>Centotheca lappacea</i>	4	<i>Leucas cephalotes</i>	3
<i>Centrosema pubescens</i>	3	<i>Lindernia crustacea</i>	4
<i>Digitaria longiflora</i>	3	<i>Marsilea quadrifolia</i>	4
<i>Digitaria violascens</i>	4	<i>Melochia corchorifolia</i>	4
<i>Echinochloa</i> sp.	3	<i>Ottochloa nodosa</i>	4
<i>Echinochloa oryzoides</i>	3	<i>Panicum bisulcatum</i>	3
<i>Fimbristylis globulosa</i>	4	<i>Sagittaria guayanensis</i>	4
<i>Galinsoga parviflora</i>	3	<i>Senna obtusifolia</i>	3
<i>Ipomoea triloba</i>	4	<i>Spilanthes filicaulis</i>	3
<i>Ischaemum barbatum</i>	3	<i>Urena lobata</i>	3

(b) Ratings 5 to 9

<i>Aeschynomene indica</i>	5	<i>Lemna purpusilla</i>	7
<i>Alternanthera sessilis</i>	8	<i>Leucas zeylanica</i>	6
<i>Asystasia gangetica</i>	5	<i>Limnocharis flava</i>	5
<i>Asystasia intrusa</i>	5	<i>Ludwigia adscendens</i>	7
<i>Axonopus compressus</i>	6	<i>Ludwigia hyssopifolia</i>	8
<i>Azolla pinnata</i>	7	<i>Ludwigia octovalvis</i>	7
<i>Boerhavia diffusa</i>	7	<i>Lygodium flexuosum</i>	5
<i>Borreria laevis</i>	5	<i>Mitracarpus villosus</i>	5
<i>Borreria latifolia</i>	7	<i>Monochoria hastata</i>	6
<i>Brachiaria mutica</i>	6	<i>Murdannia nudiflora</i>	5
<i>Celosia argentea</i>	6	<i>Najas graminea</i>	5
<i>Cenchrus echinatus</i>	5	<i>Nymphaea lotus</i>	7
<i>Chara zeylanica</i>	5	<i>Oldenlandia corymbosa</i>	6
<i>Chloris inflata</i>	9	<i>Oryza rufipogon</i>	5
<i>Cleome rutidosperma</i>	8	<i>Oxalis corymbosa</i>	5
<i>Cleome viscosa</i>	6	<i>Panicum sarmentosum</i>	5
<i>Clidemia hirta</i>	5	<i>Paspalum distichum</i>	6
<i>Commelinina diffusa</i>	8	<i>Paspalum scrobiculatum</i>	7
<i>Crotalaria pallida</i>	7	<i>Pennisetum purpureum</i>	8
<i>Cyperus brevifolius</i>	6	<i>Pteridium esculentum</i>	6
<i>Cyperus compactus</i>	5	<i>Pueraria phaseoloides</i>	6
<i>Cyperus compressus</i>	9	<i>Richardia brasiliensis</i>	5
<i>Cyperus imbricatus</i>	5	<i>Rotala indica</i>	5
<i>Cyperus kyllingia</i>	7	<i>Salvinia cucullata</i>	5
<i>Dactyloctenium aegyptium</i>	8	<i>Salvinia molesta</i>	7
<i>Digitaria sanguinalis</i>	5	<i>Scirpus grossus</i>	7
<i>Echinochloa glabrescens</i>	5	<i>Scirpus juncoides</i>	5
<i>Emilia sonchifolia</i>	5	<i>Scirpus maritimus</i>	5
<i>Eragrostis tenella</i>	5	<i>Scirpus supinus</i>	5

Table 10 (continued)

<i>Gleichenia linearis</i>	8	<i>Scleria sumatrensis</i>	5
<i>Gomphrena celosioides</i>	5	<i>Sida acuta</i>	9
<i>Heliotropium indicum</i>	5	<i>Stachytarpheta indica</i>	6
<i>Hydrilla verticillata</i>	6	<i>Stenochlaena palustris</i>	7
<i>Hymenachne actigluma</i>	5	<i>Striga asiatica</i>	6
<i>Hyptis brevipes</i>	6	<i>Trianthema portulacastrum</i>	8
<i>Hyptis capitata</i>	8	<i>Tridax procumbens</i>	8
<i>Ischaemum muticum</i>	5	<i>Typha angustifolia</i>	9
<i>Lantana camara</i>	5	<i>Vernonia cinerea</i>	5
<i>Leersia hexandra</i>	9	<i>Zoysia matrella</i>	5

## (c) Ratings 10 to 14

<i>Amaranthus viridis</i>	10	<i>Mikania micrantha</i>	11
<i>Bidens pilosa</i>	10	<i>Nephrolepis biserrata</i>	10
<i>Commelina benghalensis</i>	10	<i>Passiflora foetida</i>	11
<i>Eclipta prostrata</i>	13	<i>Pennisetum spp.</i>	11
<i>Euphorbia heterophylla</i>	10	<i>Pennisetum polystachyon</i>	11
<i>Euphorbia hirta</i>	10	<i>Pistia stratiotes</i>	14
<i>Ischaemum rugosum</i>	11	<i>Portulaca oleracea</i>	10
<i>Leptochloa chinensis</i>	14	<i>Rottboellia cochinchinensis</i>	12
<i>Marsilea minuta</i>	12	<i>Sphenoclea zeylanica</i>	14
<i>Melastoma malabathricum</i>	13		

## (d) Ratings 15 to 19

<i>Ageratum conyzoides</i>	17	<i>Fimbristylis dichotoma</i>	16
<i>Amaranthus spinosus</i>	17	<i>Mimosa invisa</i>	18
<i>Chromolaena odorata</i>	18	<i>Mimosa pigra</i>	15
<i>Cynodon dactylon</i>	18	<i>Mimosa pudica</i>	17
<i>Cyperus difformis</i>	18	<i>Panicum repens</i>	16
<i>Digitaria ciliaris</i>	19	<i>Paspalum conjugatum</i>	15

## (e) Ratings 20 and above

<i>Cyperus iria</i>	23	<i>Eleusine indica</i>	24
<i>Cyperus rotundus</i>	27	<i>Fimbristylis miliacea</i>	23
<i>Echinochloa colona</i>	28	<i>Imperata cylindrica</i>	26
<i>Echinochloa crusgalli</i>	21	<i>Monochoria vaginalis</i>	26
<i>Eichhornia crassipes</i>	20		

## (f) Summary of ratings

Family	Number of species						% (rounded)
	Below 5	5 to 9	10 to 14	15 to 19	20 and above	Total	
Poaceae	10	17	5	4	4	40	29
Cyperaceae	1	10		2	3	16	12
Asteraceae	2	3	3	2		10	7
Fabaceae	2	3		3		8	6
Amaranthaceae		3	1	1		5	4
Rubiaceae		5				5	4
Lamiaceae	1	3				4	3
Onagraceae		3				3	2
Pontederiaceae		1			2	3	2
Species in Families with 1 or 2 spp.	6	30	10			46	33
Total species	22	78	19	12	9	140	

**Table 11**

In this table the origin, or presumed origin, of the most important weed species is listed, although the origin of many of the weeds is obscure, especially when they have been widespread for many hundreds of years. The information in at least two relevant, standard, botanical works is used as the basis for the entry for each species. This is often followed (in brackets) by a "best guess" in an attempt to localise, somewhat, the probable centre of origin. I am greatly indebted to L. Adams of the Australian National Herbarium for assisting in the search for relevant data. Where information is available on the occurrence of host-specific natural enemies in one region — but not apparently elsewhere — this is taken as a strong indication of the region of origin of the weed and has been given precedence over standard botanical texts.

In the entries, Tropical America is taken as the zone between the tropics of Cancer and Capricorn. Central America is taken as (approximately) the central half of this zone. West Indies is used when attention is centered on the Caribbean. Old World tropics is taken as extending from tropical Africa eastwards as far as Papua New Guinea and Northern Australia. Pantropical is taken for the tropical belt of the world. Where entries occur such as (Africa?, India?) and (Europe?, India?) no information has been found to narrow the choice.

Where only a genus is listed in table 10 (as on 2 occasions) it is not possible to assign an origin to the unidentified weed and these weeds are omitted from table 11.

For additional comments see those introducing table 5.

**Table 11** Origin of the Southeast Asian weeds scoring 5+ (or more) or at least +++ in one country or ++ in two countries.

Species	Family	Origin
1. <i>Aeschynomene indica</i>	Fabaceae	Asia, Old World tropics (Africa?)
2. <i>Ageratum conyzoides</i>	Asteraceae	Tropical America
3. <i>Alternanthera sessilis</i>	Amaranthaceae	Pantropical (Africa?)
4. <i>Amaranthus spinosus</i>	Amaranthaceae	Tropical America (C. America?)
5. <i>Amaranthus viridis</i>	Amaranthaceae	Eastern Asia
6. <i>Asystasia gangetica</i>	Acanthaceae	Tropical Asia (India, Ceylon?)
7. <i>Asystasia intrusa</i>	Acanthaceae	Tropical Asia
8. <i>Axonopus compressus</i>	Poaceae	Tropical America (C. America?)
9. <i>Azolla pinnata</i>	Azollaceae	Old World tropics (Australia?)
10. <i>Bidens pilosa</i>	Asteraceae	Tropical America (C. America?)
11. <i>Boerhavia diffusa</i>	Nyctaginaceae	Pantropical (SE Asia?)
12. <i>Borreria laevis</i>	Rubiaceae	Tropical S. America (Venezuela?)
13. <i>Borreria latifolia</i>	Rubiaceae	Tropical S. America (Brazil?)
14. <i>Brachiaria mutica</i>	Poaceae	Africa (Tropical Africa?)
15. <i>Brachiaria paspaloides</i>	Poaceae	Tropical Asia (India?)
16. <i>Celosia argentea</i>	Amaranthaceae	Pantropical (Africa?)
17. <i>Cenchrus echinatus</i>	Poaceae	Tropical and subtropical America (Brazil?)
18. <i>Centotheca lappacea</i>	Poaceae	Tropical Asia (India?)
19. <i>Centrosema pubescens</i>	Fabaceae	Tropical America (C. America?)
20. <i>Chara zeylanica</i>	Characeae	Tropical Asia (Indonesia?)
21. <i>Chloris inflata</i>	Poaceae	Tropical Asia (India?)
22. <i>Chromolaena odorata</i>	Asteraceae	Tropical and South America
23. <i>Cleome rutidosperma</i>	Capparidaceae	Africa (tropical West Africa?)
24. <i>Cleome viscosa</i>	Capparidaceae	Old World tropics (Africa?)
25. <i>Clidemia hirta</i>	Melastomataceae	Tropical America (C. America?)
26. <i>Commelina benghalensis</i>	Commelinaceae	Old World tropics (Africa?)
27. <i>Commelina diffusa</i>	Commelinaceae	Pantropical (India?)

(continued on next page)

Table 11 (continued)

<b>Species</b>	<b>Family</b>	<b>Origin</b>
28. <i>Crotalaria pallida</i>	Fabaceae	Old World tropics (Africa?)
29. <i>Cynodon dactylon</i>	Poaceae	Africa
30. <i>Cyperus brevifolius</i>	Cyperaceae	SE Asia (Indonesia?)
31. <i>Cyperus compactus</i>	Cyperaceae	Tropical Asia (Indonesia?)
32. <i>Cyperus compressus</i>	Cyperaceae	Pantropical (SE Asia?)
33. <i>Cyperus difformis</i>	Cyperaceae	Old World tropics tropical Asia
34. <i>Cyperus imbricatus</i>	Cyperaceae	Pantropical (India?)
35. <i>Cyperus iria</i>	Cyperaceae	Asia
36. <i>Cyperus kyllingia</i>	Cyperaceae	Tropical Asia (India?)
37. <i>Cyperus rotundus</i>	Cyperaceae	India
38. <i>Dactyloctenium aegyptium</i>	Poaceae	Old World tropics (Africa?)
39. <i>Digitaria ciliaris</i>	Poaceae	Old World tropics (India?)
40. <i>Digitaria longiflora</i>	Poaceae	Old World tropics (Africa?)
41. <i>Digitaria sanguinalis</i>	Poaceae	Pantropical and temperate (Europe?)
42. <i>Digitaria violascens</i>	Poaceae	Pantropical (Brazil?)
43. <i>Echinochloa colona</i>	Poaceae	India
44. <i>Echinochloa crus-galli</i>	Poaceae	Europe, India
45. <i>Echinochloa glabrescens</i>	Poaceae	Old World tropics (India?)
46. <i>Echinochloa oryzoides</i>	Poaceae	S. Europe & W. Asia (Mediterranean?)
47. <i>Eclipta prostrata</i>	Asteraceae	Asia
48. <i>Eichhornia crassipes</i>	Pontederiaceae	South America
49. <i>Eleusine indica</i>	Poaceae	India
50. <i>Emilia sonchifolia</i>	Asteraceae	Old World tropics (India?)
51. <i>Eragrostis tenella</i>	Poaceae	Old World tropics (India?)
52. <i>Euphorbia heterophylla</i>	Euphorbiaceae	Tropical America (W. Indies?)
53. <i>Euphorbia hirta</i>	Euphorbiaceae	Tropical America (C. America?)
54. <i>Fimbristylis dichotoma</i>	Cyperaceae	Southeast Asia
55. <i>Fimbristylis globulosa</i>	Cyperaceae	Tropical Asia (SE Asia?)
56. <i>Fimbristylis miliacea</i>	Cyperaceae	Tropical America
57. <i>Galinsoga parviflora</i>	Asteraceae	Tropical S. America (Peru?)
58. <i>Gleichenia linearis</i>	Gleicheniaceae	Old World tropics (Australia?)
59. <i>Gomphrena celosioides</i>	Amaranthaceae	Subtropical S. America (Paraguay, Uruguay?)
60. <i>Hedyotis corymbosa</i>	Rubiaceae	Africa, India (Africa?)
61. <i>Heliotropium indicum</i>	Boraginaceae	Tropical America (C. America?)
62. <i>Hydrilla verticillata</i>	Hydrocharitaceae	Old World tropics (Australia?)
63. <i>Hymenachne actigluma</i>	Poaceae	Tropical Asia (India?)
64. <i>Hyptis brevipes</i>	Lamiaceae	Tropical America (Brazil?)
65. <i>Hyptis capitata</i>	Lamiaceae	Tropical America (Brazil?)
66. <i>Imperata cylindrica</i>	Poaceae	Tropical Asia
67. <i>Ipomoea triloba</i>	Convolvulaceae	Tropical America (Brazil?)
68. <i>Ischaemum barbatum</i>	Poaceae	Old World tropics (Indonesia?)
69. <i>Ischaemum indicum</i>	Poaceae	Tropical Asia (Sri Lanka?)
70. <i>Ischaemum muticum</i>	Poaceae	Tropical Asia (SE Asia?)
71. <i>Ischaemum rugosum</i>	Poaceae	Southeast Asia
72. <i>Lantana camara</i>	Verbenaceae	Tropical America (Brazil?)
73. <i>Leersia hexandra</i>	Poaceae	Africa (N. Africa?)
74. <i>Lemna purpusilla</i>	Lemnaceae	Pantropical and subtropical (SE Asia?)
75. <i>Leptochloa chinensis</i>	Poaceae	Southeast Asia
76. <i>Leucas capitata</i>	Lamiaceae	Tropical Asia (Pakistan?)
77. <i>Leucas zeylanica</i>	Lamiaceae	Tropical Asia (SE Asia?)

Table 11 (continued)

Species	Family	Origin
78. <i>Limnocharis flava</i>	Butomaceae	Tropical America (C. America?)
79. <i>Lindernia crustacea</i>	Scrophulariaceae	Old World tropics (SE Asia?)
80. <i>Ludwigia adscendens</i>	Onagraceae	Tropical Asia (SE Asia?)
81. <i>Ludwigia hyssopifolia</i>	Onagraceae	Old World tropics (India?)
82. <i>Ludwigia octovalvis</i>	Onagraceae	Pantropical (SE Asia?)
83. <i>Lygodium flexuosum</i>	Schizaceae	Old World tropics (Australia?)
84. <i>Marsilea minuta</i>	Marsileaceae	Africa, Tropical Asia
85. <i>Marsilea quadrifolia</i>	Marsileaceae	Europe, Asia (Mediterranean?)
86. <i>Melastoma malabathricum</i>	Melastomataceae	Asia, PNG, N. Australia
87. <i>Melochia concatenata</i>	Sterculiaceae	Tropical Asia (India, Ceylon?)
88. <i>Mikania micrantha</i>	Asteraceae	Tropical America (C. America?)
89. <i>Mimosa invisa</i>	Fabaceae	Tropical America (C. America?)
90. <i>Mimosa pigra</i>	Fabaceae	Tropical America (C. America?)
91. <i>Mimosa pudica</i>	Fabaceae	Tropical America (C. America?)
92. <i>Mitracarpus villosus</i>	Rubiaceae	Tropical America (C. America?)
93. <i>Monochoria hastata</i>	Pontederiaceae	Tropical Asia (SE Asia?)
94. <i>Monochoria vaginalis</i>	Pontederiaceae	Asia, Africa
95. <i>Murdannia nudiflora</i>	Commelinaceae	Old World tropics (India?)
96. <i>Najas graminea</i>	Najadaceae	Old World tropics (India?)
97. <i>Nephrolepis biserrata</i>	Nephrolepidaceae	Pantropical (Tropical Africa?)
98. <i>Nymphaea lotus</i>	Nymphaeaceae	Africa (Tropical Africa?)
99. <i>Oryza rufipogon</i>	Poaceae	Tropical Asia (India?)
100. <i>Ottochloa nodosa</i>	Poaceae	Tropical Asia (India?)
101. <i>Oxalis corymbosa</i>	Oxalidaceae	Tropical America (Brazil?)
102. <i>Panicum bisulcatum</i>	Poaceae	E. and SE Asia (China, Japan?)
103. <i>Panicum repens</i>	Poaceae	Tropical & North Africa S. Europe
104. <i>Panicum sarmentosum</i>	Poaceae	SE Asia (Thailand)
105. <i>Paspalum conjugatum</i>	Poaceae	Tropical America
106. <i>Paspalum distichum</i>	Poaceae	Tropical America (C. America?)
107. <i>Paspalum scrobiculatum</i>	Poaceae	Old World tropics (SE Asia?)
108. <i>Passiflora foetida</i>	Passifloraceae	Tropical America
109. <i>Pennisetum polystachyon</i>	Poaceae	Old World tropics
110. <i>Pennisetum purpureum</i>	Poaceae	Old World tropics (Africa?)
111. <i>Pistia stratiotes</i>	Araceae	Tropical America
112. <i>Portulaca oleracea</i>	Portulacaceae	Asia, N. Africa (Mediterranean?)
113. <i>Pteridium esculentum</i>	Dennstaedtiaceae	Australasia (Australia?)
114. <i>Pueraria phaseoloides</i>	Fabaceae	Tropical Asia (SE Asia?)
115. <i>Richardia brasiliensis</i>	Rubiaceae	S. America (Brazil?)
116. <i>Rotala indica</i>	Lythraceae	Tropical Asia (SE Asia)
117. <i>Rottboellia cochinchinensis</i>	Poaceae	SE Asia, Africa
118. <i>Sagittaria guayanensis</i>	Alismataceae	Old World tropics (SE Asia?)
119. <i>Salvinia cucullata</i>	Salviniaceae	SE Asia (India?)
120. <i>Salvinia molesta</i>	Salviniaceae	Southeast Brazil
121. <i>Scirpus grossus</i>	Cyperaceae	Tropical Asia (SE Asia?)
122. <i>Scirpus juncoides</i>	Cyperaceae	Old World tropics (SE Asia?)
123. <i>Scirpus maritimus</i>	Cyperaceae	Pantropical (Africa?)
124. <i>Scirpus supinus</i>	Cyperaceae	Pantropical (Africa?)
125. <i>Scleria sumatrensis</i>	Cyperaceae	E. and SE Asia (Indonesia?)
126. <i>Senna obtusifolia</i>	Fabaceae	Tropical America (C. America?)
127. <i>Sida acuta</i>	Malvaceae	Tropical Asia (SE Asia?)
128. <i>Sphenoclea zeylanica</i>	Sphenocleaceae	Tropical Africa
129. <i>Spilanthes filicaulis</i>	Asteraceae	Tropical Africa (W. Africa)

Table 11 (continued)

<b>Species</b>	<b>Family</b>	<b>Origin</b>
130. <i>Stachytarpetia indica</i>	Verbenaceae	Tropical America (S. America, NW Africa?)
131. <i>Stenochlaena palustris</i>	Blechnaceae	Old World tropics (Australia?)
132. <i>Striga asiatica</i>	Scrophulariaceae	Tropical Asia (SE Asia?)
133. <i>Trianthema portulacastrum</i>	Aizoaceae	Pantropical (SE Asia?)
134. <i>Tridax procumbens</i>	Asteraceae	Tropical America (Mexico?)
135. <i>Typha angustifolia</i>	Typhaceae	Tropical Asia (Indonesia?)
136. <i>Urena lobata</i>	Malvaceae	Tropical Asia (SE Asia)
137. <i>Vernonia cinerea</i>	Asteraceae	Old World tropics (India?)
138. <i>Zoysia matrella</i>	Poaceae	Tropical Asia (SE Asia?)

**Table 12**

A summary is attempted in table 12 of the regions of the world where the most important weeds in Southeast Asia are generally held to have originated. However, there are many uncertainties and some of the weeds assigned to Africa may have originated further eastwards in the Old World tropics and some of those assigned to Asia may have originated well away from Southeast Asia. Nevertheless, the overall conclusion is probably valid, namely that some 44% (61 species) are exotic to the Southeast Asian region and might reasonably be assumed to be potential targets for classical biological control.

Of the 232 weeds nominated by correspondents, 138 (60%) are regarded as 'most important'. Of the latter 38 species (28%) are grasses, 23 of them probably native to Southeast Asia. Nine of the 138 most important weeds have been targets in biological control projects, with several successes; and 33 are listed amongst the 76 worst weeds in the world by Holm et al. (1977).

**Table 12** Overview of the relationship and possible origin of the 138 most important weeds in Southeast Asia.

Family	Number of Species	Possible Origin			
		Americas	Africa	Asia	European
Poaceae	38	5	8	23	2
Cyperaceae	16	1	2	13	
Asteraceae	10	6	1	3	
Fabaceae	8	5	1	2	
Amaranthaceae	5	2	1	2	
Rubiaceae	5	4	1		
Lamiaceae	4	2		2	
Commelinaceae	3		1	2	
Onagraceae	3			3	
Pontederiaceae	3	1		2	
Acanthaceae	2			2	
Capparidaceae	2		2		
Euphorbiaceae	2	2			
Malvaceae	2			2	
Marsiliaceae	2		1		1
Melastomataceae	2	1		1	
Salvinaceae	2	1		1	
Scrophulariaceae	2			2	
Verbenaceae	2	2			
25 Families each with one weed	25	5	5	15	
Totals	138	37	23	75	3

**Table 13**

**The major arthropod pests and weeds of individual crops in Southeast Asia**

1. This table has been compiled from records of pests rated +, ++ and +++ provided by contributors from the region. It probably does not include some pest species that are important and may list some that might well be omitted. I would be most grateful if errors or omissions could be brought to my attention.
2. Arthropod pests are listed (according to Order) alphabetically under the main part of the plant damaged. Sometimes more than one plant part is damaged, but the pest is only listed once under the most important part. Unfamiliarity with many of the pests may have led me to wrong allocations and I trust these will be pointed out.
3. The notations following each species relate to:
  - (i) for insects: host range PP = very wide, P = wide, R = restricted (often to a single plant family), O = restricted to a few related species, blank = host range unknown.  
for plants: A = alga, B = broad leaf, F = fern, G = grass, S = sedge.
  - (ii) the numeral before the square bracket is the sum of the ratings for that pest for the entire region. For polyphagous pests, the crop under which this rating appears may, in some instances, not be the one most affected by the pest.
  - (iii) the numbers within the square brackets, but not within the curved brackets designate the countries from left to right in the tables — 1. Myanmar, 2. Thailand, 3. Laos, 4. Cambodia, 5. Vietnam, 6. Malaysia, 7. Singapore, 8. Brunei, 9. Indonesia, 10. Philippines.
  - (iv) the numbers within the curved brackets designate the ratings (from tables 2 and 7) for the countries whose numbers precede the curved brackets. These ratings indicate the highest level assigned to any crop in that country; this may be higher than that for the particular crop under which the record appears, eg P20[1(1)2,3,4,5,6(2)7,9,10(3)] is a polyphagous pest with a regional score of 20+'s. In Myanmar it scores +, in Thailand, Laos, Cambodia, Vietnam and Malaysia, it scores ++, in Singapore, Indonesia and Philippines +++ and there is no record for Brunei.
4. Where only arthropod pests are listed, no lists have been provided of weeds for that crop. I trust that relevant information will be provided for the next revision.

Table 13 (continued)

**ACACIA***Acacia* spp. (including *A. mangia*)

Origin: Australia, Africa, Tropical America

MIMOSACEAE

## Major arthropod pests

## Regional ratings

leaf eating	Lep	<i>Archips machlopis</i>	<b>R</b> 1 [6(1)]
		<i>Crematopsyche pendula</i>	<b>O</b> 2 [6,7(1)]
		<i>Darna trima</i>	<b>PP</b> 4 [2(2),6,9(1)]
		<i>Neostaurops alternus</i>	<b>P</b> 4 [9,10(2)]
		<i>Parasa lepida</i>	<b>PP</b> 7 [2,5,6(1)9,10(2)]
		<i>Setora nitens</i>	<b>PP</b> 6 [2,3,5,6,7,8(1)]
		<i>Spodoptera litura</i>	<b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
stem boring	Col	<i>Araecerus fasciculatus</i>	<b>P</b> 6 [2,6,7,9(1)10(2)]
root and stem boring	Iso	<i>Coptotermes curvignathus</i>	<b>P</b> 4 [2(1)6(2)9(1)]
sucking	Hem	<i>Rastrococcus iceryoides</i>	<b>P</b> 2 [6(2)]

**AVOCADO***Persea americana* LAURACEAE

Origin: Central America

## Major arthropod pests

leaf eating	Lep	<i>Attacus atlas</i>	<b>P</b> 5 [2,5,6,7,9(1)]
		<i>Cricula trifrenestrata</i>	<b>P</b> 4 [2,4(1)9(2)]
fruit damaging	Dip	<i>Bactrocera dorsalis</i>	<b>PP</b> 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
stem boring	Col	<i>Niphonclea albata</i>	2 [10(2)]
		<i>N. capito</i>	2 [10(2)]
sucking	Hem	<i>Ferrisia virgata</i>	<b>P</b> 4 [2,4(1),10(2)]
	Thy	<i>Heliothrips haemorrhoidalis</i>	<b>P</b> 2 [2,4(1)]

**BAMBOO***Bambusa* spp. POACEAE

Origin: India, Asia

## Major arthropod pests

leaf eating	Lep	<i>Hidari irrava</i>	<b>R</b> 3 [6(1)9(2)]
stem boring	Col	<i>Bostrychopsis parallela</i>	<b>R</b> 2 [10(2)]
		<i>Chlorophorus annularis</i>	<b>R</b> 2 [10(2)]
stem eating	Iso	<i>Macrotermes</i> spp.	<b>P</b> 4 [1,5,6,7(1)]
		<i>M. gilvus</i>	<b>P</b> 2 [10(2)]

**BANANA***Musa* spp. MUSACEAE

Origin: Southeast Asia

## Major arthropod pests

leaf eating	Lep	<i>Amathusia phidippus</i>	<b>R</b> 3 [2,5,6(1)]
		<i>Artona catoxantha</i>	<b>R</b> 5 [2(1)6,9(2)]
		<i>Attacus atlas</i>	<b>P</b> 5 [2,5,6,7,9(1)]
		<i>Calliteara horsfieldii</i>	<b>P</b> 1 [6(1)]
		<i>Erionota thrax</i>	<b>O</b> 7 [3,4,5,6,7,8,10(1)]
		<i>Olene mendosa</i>	<b>P</b> 4 [4,6(1)10(2)]

Table 13 (continued)

		<i>Parasa lepida</i>	<b>PP</b> 7 [2,5,6(1)9,10(2)]
		<i>Scopelodes anthela</i>	<b>2</b> [5(2)]
		<i>S. testacea</i>	<b>2</b> [5(2)]
	Col	<i>Spodoptera litura</i>	<b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Adoretus compressus</i>	<b>P</b> 4 [5,6,7,9(1)]
		<i>Basilepta subcostatum</i>	<b>P</b> 2 [5(2)]
		<i>B. viridipenne</i>	<b>P</b> 1 [2(1)]
	Ort	<i>Nomadacris succinata</i>	<b>P</b> 6 [2,3,5(2)]
		<i>Valanga nigricornis</i>	<b>P</b> 4 [6(1)7(2)10(1)]
tip boring	Lep	<i>Tiracola plagiata</i>	<b>P</b> 2 [2,6(1)]
stem,	Col	<i>Cosmopolites sordidus</i>	<b>R</b> 13 [2(1)5(3)6(2)7(1)8,9,10(2)]
root boring		<i>Odoiporus longicollis</i>	<b>O</b> 5 [2,4(1)5(2)6(1)]
fruit damaging	Dip	<i>Bactrocera dorsalis</i>	<b>PP</b> 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>Aspidiotus destructor</i>	<b>P</b> 7 [2,4,5,6,7,9,10(1)]
sucking	Hem	<i>Pentalonia nigronervosa</i>	<b>O</b> 6 [2,3,5,7(1)10(2)]
		<i>Stephanitis typica</i>	<b>P</b> 3 [2,5,7(1)]
Major weeds		<i>Ageratum conyzoides</i>	<b>B</b> 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Amaranthus lividus</i>	<b>B</b> 2 [6(2)]
		<i>A. spinosus</i>	<b>B</b> 17 [1,2(3)3,4,5(1)6,7(2)9(1)10(3)]
		<i>Asystasia intrusa</i>	<b>B</b> 5 [6(3)7(2)]
		<i>Axonopus compressus</i>	<b>G</b> 6 [2,6(1)7(2)9,10(1)]
		<i>Borreria latifolia</i>	<b>B</b> 7 [6(3)7,9(2)]
		<i>Cleome ruigidisperma</i>	<b>B</b> 8 [2(1)6(2)7(3)10(2)]
		<i>Cyperus zollingeri</i>	<b>S</b> 4 [6(2)7,8(1)]
		<i>Digitaria ciliaris</i>	<b>G</b> 19 [1,2(2)3(1)4(3)5(2)6(3)7(2)9(3)10(2)]
		<i>Eleusine indica</i>	<b>G</b> 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Erechtites hieracifolia</i>	<b>B</b> 3 [6(2)7(1)]
		<i>E. valerianaefolia</i>	<b>B</b> 3 [6(2)7(1)]
		<i>Erigeron sumatrensis</i>	<b>B</b> 2 [6(2)]
		<i>Imperata cylindrica</i>	<b>G</b> 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Ischaemum muticum</i>	<b>G</b> 5 [6,7(2)10(1)]
		<i>Melastoma malabathricum</i>	<b>B</b> 13 [2,3,5(1)6(3)7(2)8(3)9,10(1)]
		<i>Mikania micrantha</i>	<b>B</b> 11 [6,7(3)8,9(2)10(1)]
		<i>Mimosa invisa</i>	<b>B</b> 18 [1,2,3(2)4(1)5,6,7,9(2)10(3)]
		<i>M. pudica</i>	<b>B</b> 17 [1(3),2,5(1)6(2)7(3)8(2)9(3)10(2)]
		<i>Ottochloa nodosa</i>	<b>G</b> 4 [1,6(2)]
		<i>Paspalum conjugatum</i>	<b>G</b> 15 [5,6(3)7,8(2)9(3)10(2)]
		<i>P. scrobiculatum</i>	<b>G</b> 7 [6,7,8(2)10(1)]
		<i>Passiflora foetida</i>	<b>B</b> 11 [1,2,3,5(1)6(3)7(1)8(2)10(1)]
		<i>Scleria sumatrensis</i>	<b>S</b> 5 [6(2)7(1)8(2)]

**BEAN***Phaseolus vulgaris*  
Origin: Mexico

FABACEAE

## Major arthropod pests

leaf eating	Lep	<i>Chrysodeixis eriosoma</i>	<b>P</b> 5 [4,5,6(1)10(2)]
		<i>Helicoverpa armigera</i>	<b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
		<i>Lamprosema diemenalis</i>	<b>R</b> 4 [2,3,6,7(1)]
		<i>Olene mendosa</i>	<b>P</b> 4 [4,6(1)10(2)]
		<i>Porthesia scintillans</i>	<b>P</b> 3 [2,5,6(1)]
		<i>Tiracola plagiata</i>	<b>P</b> 2 [2,6(1)]
	Col	<i>Epilachna indica</i>	<b>R</b> 1 [7(1)]
leaf mining	Dip	<i>Chromatomyia horticola</i>	<b>P</b> 3 [6(3)]
		<i>Ophiomyia phaseoli</i>	<b>R</b> 14 [1,2(1)3,5,6(2)7(1)9(3)10(2)]

Table 13 (continued)

stem boring	Dip	<i>Melanagromyza sojae</i>	R 5 [2(1)5(3)9(1)]
		<i>Anomis flava</i>	R 9 [2,4(1)5(3),6,10(2)]
pod boring	Lep	<i>Maruca testulalis</i>	R 17 [1,2,3(1)4,5(3)6(2)7(1)8(3)9,10(1)]
	Col	<i>Callosobruchus chinensis</i>	R 8 [1,2(1)5,6(2)7,9(1)]
Major weeds		<i>Amaranthus</i> spp.	B 2 [2(2)]
		<i>Echinochloa colonum</i>	G 28 [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
		<i>Eleusine indica</i>	G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Pueraria phaseoloides</i>	B 6 (1(1)2,7(2)10(1)]

**BREADFRUIT***Artocarpus altilis* MORACEAE

Origin: Polynesia

## Major arthropod pests

fruit damaging	Lep	<i>Glyphodes caesalis</i>	R 7 [5(3)6,7(1)8(2)]
	Col	<i>Araecerus fasciculatus</i>	P 6 [2,6,7,9(1)10(2)]
	Dip	<i>Bactrocera umbrosa</i>	P 9 [2(1)6(2)7(1)8(2)9(1)10(2)]
stem boring	Col	<i>Batocera rubus</i>	P 4 [2,5(1)10(2)]
root eating	Col	<i>Leucopholis irrorata</i>	P 3 [10(3)]
sucking	Hem	<i>Ferrisia virgata</i>	P 4 [2,4(1)10(2)]

**CABBAGE** (and other brassicas)(a) *Brassica oleracea* var *capitata* (b) *Brassica chinensis* BRASSICACEAE

Origin: (a) head cabbage, Mediterranean; (b) chinese cabbage, eastern Asia.

## Major arthropod pests

leaf eating	Lep	<i>Agrotis ipsilon</i>	P 11 [1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>A. segetum</i>	P 1 [1(1)]
		<i>Amsacta lactinea</i>	P 1 [5(1)]
		<i>Argyrogramma signata</i>	R 2 [2,3(1)]
		<i>Chrysodeixis eriosoma</i>	P 5 [4,5,6(1)10(2)]
		<i>Crocidolomia pavonana</i>	R 9 [1,2,4,6(1)8(3)9(2)]
		<i>Hellula undalis</i>	P 12 [2,3,4,5(1)6(2)7(3)8(2)9(1)]
		<i>Helicoverpa armigera</i>	PP 26 [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
		<i>Lyonetta</i> sp.	1 [3(1)]
		<i>Pieris canidia</i>	R 4 [1(2),2,7(1)]
		<i>Pieris rapae</i>	R 4 [1(2)5,6(1)]
		<i>Plutella xylostella</i>	R 30 [1,2,3,4,5,6,7,8,9,10(3)]
		<i>Porthesia scintillans</i>	P 3 [2,5,6(1)]
		<i>Spodoptera exigua</i>	PP 5 [2(2)5(3)]
		<i>Spodoptera litura</i>	PP 22 [1(3)2(2)3(1)4(2)5,6(3),7,8,9,10(2)]
		<i>Tiracola plagiata</i>	P 2 [2,6(1)]
		<i>Trichoplusia ni</i>	R 7 [1,2,4(2)5(1)]
Col		<i>Phyllotreta cruciferae</i>	P 2 [6,7(1)]
		<i>P. flexuosa</i>	R 3 [2,3,6(1)]
		<i>P. striolata</i>	R 5 [1(1)5(3)7(1)]
		<i>P. viittata</i>	R 1 [9(1)]
leaf mining	Dip	<i>Chromatomyia horticola</i>	P 3 [6(3)]
		<i>Liriomyza brassicae</i>	R 4 [2(1)4(2)7(1)]
sucking	Hem	<i>Brevicoryne brassicae</i>	R 6 [2(1)5(3)10(2)]
		<i>Eurydema pulchra</i>	R 2 [2,3(1)]
		<i>Lipaphis erysimi</i>	R 5 [1,2,3,6,7(1)]
		<i>Myzus persicae</i>	P 12 [2,3(1)5(3)6(2)7(1)9,10(2)]

Table 13 (continued)

Major weeds	<i>Ageratum conyzoides</i>	<b>B</b> <b>17</b> [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
	<i>Amaranthus viridis</i>	<b>B</b> <b>10</b> [1(1)2(3)3,4,5,7(1)10(2)]
	<i>Bidens pilosa</i>	<b>B</b> <b>10</b> [1(1)2(2)3,4,5(1)9,10(2)]
	<i>Brachiaria reptans</i>	<b>G</b> <b>3</b> [2(2)5(1)]
	<i>Commelina diffusa</i>	<b>B</b> <b>8</b> [2,7,9,10(2)]
	<i>Cynodon dactylon</i>	<b>G</b> <b>18</b> [1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)]
	<i>Cyperus rotundus</i>	<b>S</b> <b>28</b> [1,2(3)3,4(2)5,6,7,8,9,10(3)]
	<i>Echinochloa</i> spp.	<b>G</b> <b>3</b> [2(3)]
	<i>Eleusine indica</i>	<b>G</b> <b>24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
	<i>Panicum repens</i>	<b>G</b> <b>16</b> [1(1)2(2)5(3)6,7(2)8(1)9(3)10(2)]
	<i>Portulaca oleracea</i>	<b>B</b> <b>10</b> [1(1)2(2)5,6,7,9(1)10(3)]

**CAPSICUM***Capsicum annuum*

Origin: South America

SOLANACEAE

## Major arthropod pests

fruit boring	Lep	<i>Agrotis ipsilon</i>	<b>P</b> <b>11</b> [1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>Helicoverpa armigera</i>	<b>PP</b> <b>26</b> [1,2(3)2(2)4,5,6,(3)7(1)8(2)9,10(3)]
		<i>Spodoptera littura</i>	<b>PP</b> <b>22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
	Dip	<i>Bactrocera cucurbitae</i>	<b>P</b> <b>25</b> [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
		<i>B. dorsalis</i>	<b>PP</b> <b>26</b> [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>B. latifrons</i>	<b>R</b> <b>6</b> [2(1)6,8(2)9(1)]
root damaging	Col	<i>Anomala pallida</i>	<b>2</b> [6,7(1)]
	Ort	<i>Gryllotalpa africana</i>	<b>P</b> <b>5</b> [2,6,8(1)10(2)]
sucking	Hem	<i>Aphis gossypii</i>	<b>P</b> <b>19</b> [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2)
			10(3)]
		<i>Helopeltis theivora</i>	<b>R</b> <b>9</b> [5(2)6(3)9,10(2)]
	Thy	<i>Scirtothrips dorsalis</i>	<b>P</b> <b>5</b> [1,2(2)6(1)]
		<i>Thrips palmi</i>	<b>P</b> <b>12</b> [1(1)2(2)6(3)7,8,9(1)10(3)]
		<i>T. tabaci</i>	<b>PP</b> <b>9</b> [1(1)2,5(2)7(1)10(3)]
	Aca	<i>Polyphagotarsonemus latus</i>	<b>P</b> <b>6</b> [1,2,6(1)7(2)9(1)]
		<i>Tetranychus urticae</i>	<b>PP</b> <b>11</b> [2(1)5,6(2)7(1)9(3)10(2)]

**CARAMBOLA***Averrhoa carambola*

Origin: Indonesia

OXALIDACEAE

## Major arthropod pests

leaf eating	Lep	<i>Lymantria lunata</i>	<b>P</b> <b>2</b> [10(2)]
		<i>Diachrotricha fasciola</i>	<b>O</b> <b>1</b> [6(1)]
		<i>Porthesia scintillans</i>	<b>P</b> <b>3</b> [2,5,7(1)]
fruit damaging	Lep	<i>Cryptophlebia</i> sp.	<b>P</b> <b>2</b> [6(2)]
		<i>Conogethes punctiferalis</i>	<b>P</b> <b>13</b> [2,3(1),4,5(3)6(2)9(1)10(2)]
	Dip	<i>Bactrocera dorsalis</i>	<b>PP</b> <b>26</b> [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>B. latifrons</i>	<b>R</b> <b>6</b> [2(1)6,8(2)9(1)]
stem boring	Col	<i>Pterolophia bigibbera</i>	<b>1</b> [10(1)]
sucking	Hem	<i>Ferrisia virgata</i>	<b>P</b> <b>4</b> [2,4(1)10(2)]
Major weeds		<i>Borreria latifolia</i>	<b>B</b> <b>7</b> [6(3)7,9(2)]
		<i>Digitaria ciliaris</i>	<b>G</b> <b>19</b> [1,2(2)3(1)4(3)5(2)6,7(2)9(3)10(2)]
		<i>Eleusine indica</i>	<b>G</b> <b>24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Imperata cylindrica</i>	<b>G</b> <b>26</b> [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Mimosa pudica</i>	<b>B</b> <b>17</b> [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]

Table 13 (continued)

	<i>Panicum sarmentosum</i>	<b>G</b> 5 [6(3)7(2)]
	<i>Paspalum conjugatum</i>	<b>G</b> 15 [5,6(3)7,8(2)9(3)10(2)]

**CASHEW**

*Anacardium occidentale* ANCARDIACEAE  
Origin: Tropical America

## Major arthropod pests

leaf eating	Lep	<i>Attacus atlas</i>	<b>P</b> 5 [2,5,6,7,9(1)]
		<i>Cricula trifrenestrata</i>	<b>P</b> 4 [2,4(1)9(2)]
		<i>Euproctis</i> spp.	<b>1</b> [10(1)]
		<i>Euthalia aconthea</i>	<b>O</b> 2 [5,6(1)]
		<i>Hyperaeschrella insulicola</i>	<b>R</b> 1 [2(1)]
		<i>Metanaastria hyrtaca</i>	<b>R</b> 1 [2(1)]
		<i>Parasa lepida</i>	<b>PP</b> 7 [2,5,6(1)9,10(2)]
	Col	<i>Lepidiota stigma</i>	<b>P</b> 3 [2(1)9(2)]
leaf mining	Lep	<i>Acrocercops syngamma</i>	<b>O</b> 1 [2(1)]
	Col	<i>Xylotrupes gideon</i>	<b>PP</b> 4 [1,5(2)]
fruit damaging	Lep	<i>Nephopterix piratis</i>	<b>1</b> [1(9)]
	Dip	<i>Bactrocera dorsalis</i>	<b>PP</b> 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
stem boring	Col	<i>Batocera rufomaculata</i>	<b>PP</b> 2 [1,2(1)]
		<i>Plocaderus ferrugineus</i>	<b>R</b> 1 [2(1)]
		<i>Rhytidodera simulans</i>	<b>R</b> 5 [1,6,7,8,9(1)]
root damaging	Col	<i>Leucopholis rorida</i>	<b>P</b> 1 [9(1)]
sucking	Hem	<i>Ferrisia virgata</i>	<b>P</b> 4 [2,4(1)10(2)]
	Thy	<i>Rhipiphorothrips cruentatus</i>	<b>PP</b> 1 [2(1)]

**CASSAVA**

*Manihot esculenta* EUPHORBIACEAE  
Origin: Central America

## Major arthropod pests

leaf eating	Lep	<i>Achaea janata</i>	<b>P</b> 8 [1(1)2(2)3(1)4(2)5,6(1)]
		<i>Calliteara horsfieldii</i>	<b>P</b> 2 [2,6(1)]
		<i>Tiracola plagiata</i>	<b>P</b> 2 [2,6(1)]
	Ort	<i>Valanga nigricornis</i>	<b>P</b> 4 [6(1)7(2)10(1)]
stem borer	Col	<i>Dorysthenes buqueti</i>	<b>P</b> 1 [2(1)]
seedling	Iso	<i>Macrotermes</i> sp.	<b>P</b> 4 [1,5,6,7(1)]
damaging	Col	<i>Lepidiota stigma</i>	<b>P</b> 3 [2(1)9(2)]
sucking	Hem	<i>Aonidomytilus albus</i>	<b>R</b> 1 [2(1)]
		<i>Jacobiasca formosana</i>	<b>P</b> 3 [2,6,7(1)]
		<i>Ferrisia virgata</i>	<b>P</b> 4 [2,4(1)10(2)]
		<i>Megymenum brevicornis</i>	<b>P</b> 2 [5,6(1)]
		<i>Parasaissetia nigra</i>	<b>P</b> 1 [6(1)]
	Aca	<i>Oligonychus coffeae</i>	<b>P</b> 5 [2(2)5(3)]
		<i>Tetranychus truncatus</i>	<b>P</b> 2 [2(2)]
		<i>T. urticae</i>	<b>PP</b> 11 [2(1)5,6(2)7(1)9(3)10(2)]
Major weeds		<i>Ageratum conyzoides</i>	<b>B</b> 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Amaranthus spinosus</i>	<b>B</b> 17 [1,2(3)3,4,5(1)6,7,(2)9(1)10(3)]
		<i>Bidens pilosa</i>	<b>B</b> 10 [1(1)2(2)3,4,5(1)9,10(2)]
		<i>Crotalaria pallida</i>	<b>B</b> 7 [2(2)3,4,5,7,10(1)]
		<i>Cyperus rotundus</i>	<b>S</b> 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
		<i>Digitaria ciliaris</i>	<b>G</b> 19 [1,2(2)3(1)4(3)5(2)6,7(2)9(3)10(2)]

	<i>Echinochloa colonum</i>	G <b>28</b> [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
	<i>Eleusine indica</i>	G <b>24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
	<i>Euphorbia heterophylla</i>	<b>B</b> <b>10</b> [1(1)2(3)3,4,5(1)6(2)10(1)]
	<i>E. hirta</i>	<b>B</b> <b>10</b> [2(2)3,4,5,6(1)7,10(2)]
	<i>Imperata cylindrica</i>	<b>G</b> <b>26</b> [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
	<i>Mimosa pudica</i>	<b>B</b> <b>17</b> [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]
	<i>Tridax procumbens</i>	<b>B</b> <b>10</b> [1(1)2(2)6(1)7,10(2)]
<b>CASTOR</b>		
	<i>Ricinus communis</i>	EUPHORBIACEAE
	Origin: Africa	
Major arthropod pests		
leaf eating	Lep	<i>Achaea janata</i> P <b>8</b> [1(1)2(2)3(1)4(2)5,6(1)] <i>A. serva</i> R <b>1</b> [1(3)] <i>Ariadne ariadne</i> O <b>2</b> [5(2)] <i>Darna trima</i> PP <b>4</b> [2(2)6,9(1)] <i>Hyposidra talaca</i> P <b>2</b> [6,9(1)] <i>Olene mendosa</i> P <b>4</b> [4,6(1)10(2)] <i>Orgyia postica</i> P <b>7</b> [2,3,5,6,9(1)10(2)] <i>Parasa lepida</i> PP <b>7</b> [2,5,6(1)9,10(2)] <i>Porthesia scintillans</i> P <b>3</b> [2,5,6(1)] <i>Setora nitens</i> P <b>6</b> [2,3,5,6,7,8(1)] <i>Spodoptera litura</i> PP <b>22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)] <i>Tiracola plagiata</i> P <b>2</b> [2,6(1)] <i>Anomala antiqua</i> P <b>6</b> [1(3)2,5,9(1)] <i>Anomala cupripes</i> P <b>4</b> [2,5,6,7(1)] <i>Hypomeces squamosus</i> PP <b>14</b> [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)] <i>Empoasca flavesrens</i> P <b>7</b> [1(1)5(3)6(1)9(2)] <i>Valanga nigricornis</i> P <b>4</b> [6(1)7(2)10(1)] <i>Conogethes punctiferalis</i> P <b>13</b> [2,3(1)4,5(3)6(2)9(1)10(2)] <i>Bemisia spp.</i> 1 [5(1)] <i>Jacobiasca formosana</i> R <b>3</b> [2,6,7(1)] <i>Trialeurodes rara</i> R <b>1</b> [4(1)] <i>T. ricini</i> R <b>2</b> [2,4(1)] <i>Aceria tulipae</i> P <b>6</b> [2(1)5(3)10(2)] <i>Tetranychus truncatus</i> P <b>2</b> [2(2)]
pod boring	Lep	
sucking	Hem	
Major weeds		<i>Digitaria sanguinalis</i> G <b>4</b> [1,7(1)10(2)] <i>Portulaca oleracea</i> B <b>10</b> [1(1)2(2)5,6,7,9(1)10(3)]
<b>CEMPEDAK</b>		
	<i>Artocarpus champeden</i>	MORACEAE
	Origin: Malaysia	
Major arthropod pests		
fruit damaging	Dip	<i>Bactrocera umbrosa</i> P <b>9</b> [2(1)6(2)7(1)8(2)9(1)10(2)]
Major weeds		<i>Chromolaena odorata</i> B <b>18</b> [1,2,3,4,5(2)6(3)9,10(2)] <i>Echinochloa colonum</i> G <b>28</b> [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)] <i>Eleusine indica</i> G <b>24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)] <i>Gleichenia linearis</i> F <b>8</b> [6(2)7,8(3)] <i>Imperata cylindrica</i> G <b>26</b> [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)] <i>Ischaemum muticum</i> G <b>5</b> [6,7(2)10(1)] <i>I. rugosum</i> G <b>11</b> [1(1)6(3)7(1)8,9,10(2)] <i>Melochia concatenata</i> B <b>4</b> [1(1)6(2)10(1)] <i>Mikania micrantha</i> B <b>11</b> [6,7(3)8,9(2)10(1)]

Table 13 (continued)

<i>Mimosa invisa</i>	<b>B</b> <b>18</b>	[1,2,3(2)4(1)5,6,7,9(2)10(3)]
<i>Nephrolepis biserrata</i>	<b>F</b> <b>10</b>	[6(2)7,8(3)10(2)]
<i>Ottochloa nodosa</i>	<b>G</b> <b>4</b>	[1,6(2)]
<i>Panicum repens</i>	<b>G</b> <b>16</b>	[1(1)2(2)5(3)6,7(2)8(1)9(3)10(2)]
<i>Paspalum conjugatum</i>	<b>G</b> <b>15</b>	[5,6(3)7,8(2)9(3)10(2)]
<i>P. scrobiculatum</i>	<b>G</b> <b>7</b>	[6,7,8(2)10(1)]

**CHICK PEA**, see Pigeon Pea for same pests

### CHRYSANTHEMUM

Origin: China

ASTERACEAE

Major arthropod pests

sucking	Hem	<i>Aphis gossypii</i>	<b>P</b> <b>19</b>	[1(2)2(3)3(1)4,5,6(2)7,8(1)9(2) 10(3)]
		<i>Frankliniella occidentalis</i>	<b>PP</b> <b>1</b>	[6(1)]
		<i>Myzus persicae</i>	<b>P</b> <b>12</b>	[2,3(1)5(3)6(2)7(1)9,10(2)]
	Aca	<i>Tetranychus</i> spp.	<b>P</b> <b>8</b>	[1(1)5(2)6,7,8(1)10(2)]

### CIKU

*Achras sapota* SAPOTACEAE

Origin: Southeast Asia

Major arthropod pest

leaf eating	Lep	<i>Achaea serva</i>	<b>R</b> <b>1</b>	[3(1)]
	Col	<i>Anomala pallida</i>	<b>P</b> <b>2</b>	[6,7(1)]
		<i>Apogonia cribricollis</i>	<b>R</b> <b>1</b>	[7(1)]
		<i>Hypomeces squamosus</i>	<b>PP</b> <b>14</b>	[1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
shoot, fruit boring	Lep	<i>Nephopterix piratis</i>	<b>1</b>	[9(1)]
	Dip	<i>Bactrocera dorsalis</i>	<b>PP</b> <b>26</b>	[1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
Major weeds		<i>Asystasia intrusa</i>	<b>B</b> <b>5</b>	[6(3)7(2)]
		<i>Borreria latifolia</i>	<b>B</b> <b>7</b>	[6(3)7,9(2)]
		<i>Echinochloa colonum</i>	<b>G</b> <b>28</b>	[1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
		<i>Eleusine indica</i>	<b>G</b> <b>24</b>	[1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Imperata cylindrica</i>	<b>G</b> <b>26</b>	[1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Ischaemum muticum</i>	<b>G</b> <b>5</b>	[6,7(2)10(1)]
		<i>Melastoma malabathricum</i>	<b>B</b> <b>13</b>	[2,3,5(1)6(3)7(2)8(3)9,10(1)]
		<i>Mikania micrantha</i>	<b>B</b> <b>11</b>	[6,7(3)8,9(2)10(1)]
		<i>Mimosa pudica</i>	<b>B</b> <b>17</b>	[1(3)2,5(1),6(2)7(3)8(2)9(3)10(2)]
		<i>Ottochloa nodosa</i>	<b>G</b> <b>4</b>	[1,6(2)]
		<i>Panicum sarmentosum</i>	<b>G</b> <b>5</b>	[6(3)7(2)]
		<i>Paspalum conjugatum</i>	<b>G</b> <b>15</b>	[5,6(3)7,8(2)9(3)10(2)]
		<i>P. scrobiculatum</i>	<b>G</b> <b>7</b>	[6,7,8(2)10(1)]

### CINNAMON

*Cinnamomum zeylanicum* LAURACEAE

Origin: Sri Lanka, south west India

Major arthropod pests

leaf eating	Lep	<i>Adoxophyes privatana</i>	<b>P</b> <b>1</b>	[7(1)]
		<i>Archips tabescens</i>	<b>P</b> <b>1</b>	[6(1)]

sucking	Aca	<i>Attacus atlas</i> <i>Calliteara horsfieldii</i> <i>Cricula trifenestrata</i> <i>Homona coffearia</i> <i>Hyposidra talaca</i> <i>Olene mendosa</i> <i>Orgyia postica</i> <i>Orgyia turbata</i> <i>Parasa lepida</i> <i>Porthesia scintillans</i> <i>Eriophyes doctersi</i>	<b>P</b> 5 [2,5,6,7,9(1)] <b>P</b> 1 [6(1)] <b>P</b> 4 [2,4(1)9(2)] <b>P</b> 3 [6,7,9(1)] <b>P</b> 2 [6,9(1)] <b>P</b> 4 [4,6(1)10(2)] <b>P</b> 7 [2,3,5,6,9(1)10(2)] <b>P</b> 2 [2,6(1)] <b>PP</b> 7 [2,5,6(1)9,10(2)] <b>P</b> 3 [2,5,6(1)] <b>O</b> 1 [9(1)]
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**CITRUS***Citrus* spp. RUTACEAE

Origin: Southeast Asia, China, West Indies

## Major arthropod pests

leaf eating	Lep	<i>Archips machlopis</i> <i>Archips micaceanus</i> <i>Attacus atlas</i> <i>Darna trima</i> <i>Mahasena corbetti</i> <i>Olene mendosa</i> <i>Papilio demoleus</i> <i>P. polytes</i> <i>Spodoptera litura</i> <i>Thosea sinensis</i> <i>Tiracola plagiata</i> <i>Apogonia cribicollis</i> <i>Hypomeces squamosus</i>	<b>R</b> 1 [6(1)] <b>P</b> 6 [2(1)3(2)5,6,7(1)] <b>P</b> 5 [2,5,6,7,9(1)] <b>PP</b> 4 [2(2)6,7(1)] <b>R</b> 5 [2,6(2)7(1)] <b>P</b> 4 [4,6(1)10(2)] <b>R</b> 6 [1,2,3,5,6,7(1)] <b>R</b> 5 [2,5,6,7,10(1)] <b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)] <b>P</b> 5 [2,3,5(1)10(2)] <b>P</b> 2 [2,6(1)] <b>R</b> 1 [7(1)]
	Col	<i>Chondracris rosea</i>	<b>PP</b> 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)] <b>P</b> 1 [5(1)] <b>P</b> 4 [6(1)7(2)10(1)]
leaf mining	Lep	<i>Phylloconistis citrella</i>	<b>R</b> 16 [1(1)2(3)3,4,5(2)6,7,8,9(1)10(2)]
fruit damaging	Lep	<i>Citripestis sagittiferella</i>	<b>R</b> 6 [2(1)6(2)7,8,9(1)]
		<i>Ephestia cautella</i>	<b>P</b> 2 [6,7(1)]
		<i>Eudocima salaminia</i>	<b>P</b> 2 [5(2)]
		<i>Ophiusa coronata</i>	<b>P</b> 3 [2(1)5(2)]
		<i>Ophiusa tirhaca</i>	<b>P</b> 2 [6(2)]
		<i>Othreis fullonia</i>	<b>P</b> 6 [2(1)5(2)6(1)8(2)]
		<i>Prays endocarpa</i>	<b>O</b> 3 [6(2)7(1)]
	Dip	<i>Bactrocera dorsalis</i>	<b>PP</b> 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>Bactrocera latifrons</i>	<b>R</b> 6 [2(1)6,8(2)9(1)]
stem boring	Lep	<i>Zeuzera coffeae</i>	<b>R</b> 8 [2,5,6,10(2)]
	Col	<i>Anoplophora chinensis</i>	<b>R</b> 2 [5(2)]
		<i>Chelidonium</i> sp.	<b>R</b> 1 [2(1)]
		<i>C. argentatum</i>	<b>R</b> 2 [5(2)]
sucking	Iso	<i>Coptotermes havilandi</i>	<b>P</b> 1 [9(1)]
	Hem	<i>Cataenococcus hispidus</i>	<b>P</b> 2 [2,6(1)]
		<i>Ceroplastes rubens</i>	<b>R</b> 3 [2,5,6(1)]
		<i>Chrysomphalus aonidum</i>	<b>P</b> 3 [1,2,5(1)]
		<i>Coccus viridis</i>	<b>P</b> 7 [2,4(1)5(2)7(1)9(2)]
		<i>Diaphorina citri</i>	<b>R</b> 8 [5(2)6,7(1)9,10(2)]
		<i>Eysarcoris guttiger</i>	<b>1</b> [1(1)]
		<i>Ferrisia virgata</i>	<b>P</b> 4 [2,4(1)10(2)]
		<i>Icerya pulchra</i>	<b>1</b> [6(1)]
		<i>Icerya purchasi</i>	<b>P</b> 4 [2,5,6,7(1)]

Table 13 (continued)

	<i>I. seychellarum</i>	P 1 [2(1)]	
	<i>Lepidosaphes beckii</i>	R 5 [5,7(1)8(2)9(1)]	
	<i>Leptoglossus gonagra</i>	P 6 [2,6(1)8,10(2)]	
	<i>Mictis longicornis</i>	P 3 [6,7,8(1)]	
	<i>Parlatoria ziziphi</i>	R 2 [4,5(1)]	
	<i>Planococcus citri</i>	P 7 [2(1)5(3)6,8,9(l)]	
	<i>Rhynchocoris poseidon</i>	R 5 [2,4(1)5(2)6(l)]	
	<i>Saissetia coffeae</i>	P 2 [2,6(1)]	
	<i>Toxoptera aurantii</i>	P 6 [2(1)6(2)7(1)10(2)]	
	<i>T. citricidus</i>	R 6 [1,2,4,5,6,7(l)]	
Thy	<i>Scirtothrips dorsalis</i>	P 5 [1,2(2)6(1)]	
Aca	<i>Eotetranychus candanai</i>	R 3 [2(3)]	
	<i>Eutetranychus africanus</i>	P 3 [2(3)]	
	<i>Phyllocoptrus oleivora</i>	R 4 [2(3)6(1)]	
	<i>Tetranychus spp.</i>	P 8 [1(1)5(2)6,7,8(1)10(2)]	
Major weeds	<i>Asystasia intrusa</i>	B 5 [6(3)7(2)]	
	<i>Borreria latifolia</i>	B 7 [6(3)7,9(2)]	
	<i>Cyperus rotundus</i>	S 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]	
	<i>Digitaria ciliaris</i>	G 19 [1,2(2)3(1)4(3)5(2)6,7(2)9(3)10(2)]	
	<i>Eleusine indica</i>	G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]	
	<i>Imperata cylindrica</i>	G 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]	
	<i>Mikania micrantha</i>	B 11 [6,7(3)8,9(2)10(1)]	
	<i>Mimosa pudica</i>	B 17 [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]	
<b>CLOVE</b>			
<i>Eugenia caryophyllus</i>	MYRTACEAE		
Origin: Moluccas			
Major arthropod pests			
leaf eating	Lep	<i>Cryptothela variegata</i>	PP 1 [5(1)]
	Col	<i>Anomala cupripes</i>	P 4 [2,5,6,7(1)]
		<i>Hypomeces squamosus</i>	PP 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
		<i>Leucopholis rorida</i>	P 1 [9(1)]
stem boring	Col	<i>Apoderus notatus</i>	R 4 [2,5(2)]
		<i>Hexamitodera semivelutina</i>	O 2 [9(2)]
		<i>Nothopeus fasciatipennis</i>	O 2 [9(2)]
sucking	Hem	<i>Icerya purchasi</i>	P 4 [2,5,6,7(1)]
		<i>Lawana imitata</i>	R 1 [5(1)]
		<i>Saissetia coffeae</i>	P 2 [2,6(1)]
Major weeds		<i>Asystasia intrusa</i>	B 5 [6(3)7(2)]
		<i>Axonopus compressus</i>	G 6 [2,6(1)7(2)9,10(1)]
		<i>Digitaria ciliaris</i>	G 19 [1,2(2)3(1)4(3)5(2)6,7(2)9(3)10(2)]
		<i>Imperata cylindrica</i>	G 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Paspalum conjugatum</i>	G 15 [5,6(3)7,8(2)9(3)10(2)]
<b>COCOA</b>			
<i>Theobroma cacao</i>	STERCULIACEAE		
Origin: Central America			
Major arthropod pests			
leaf eating	Lep	<i>Achaea janata</i>	P 8 [1(1)2(2)3(1)4(2)5,6(1)]
		<i>Adoxophyes privatana</i>	P 1 [7(1)]

		<i>Amsacta lactinea</i>	P	1	[5(1)]
		<i>Archips machlopis</i>	R	1	[6(1)]
		<i>Calliteara horsfieldii</i>	P	1	[6(1)]
		<i>Chrysodeixis eriosoma</i>	P	5	[4,5,6(1)10(2)]
		<i>Crematopsyche pendula</i>	O	2	[6,7(1)]
		<i>Cryptothelia variegata</i>	PP	1	[5(1)]
		<i>Darna diducta</i>	P	2	[2,6(1)]
		<i>Darna trima</i>	PP	4	[2(2)6,9(1)]
		<i>Hyposidra talaca</i>	P	2	[6,9(1)]
		<i>Mahasena corbetti</i>	R	5	[2,6(2)7(1)]
		<i>Olene mendosa</i>	P	4	[4,6(1)10(2)]
		<i>Orgyia postica</i>	P	7	[2,3,5,6,9(1)10(2)]
		<i>O. turbata</i>	P	2	[2,6(1)]
		<i>Porthesia scintillans</i>	P	3	[2,5,6(1)]
		<i>Setora nitens</i>	PP	6	[2,3,5,6,7,8(1)]
	Col	<i>Spodoptera litura</i>	PP	22	[1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Anomala cupripes</i>	P	4	[2,5,6,7(1)]
		<i>A. pallida</i>	P	2	[6,7(1)]
		<i>Apogonia cribicollis</i>	R	1	[7(1)]
		<i>Hypomeces squamosus</i>	PP	14	[1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
pod boring	Ort	<i>Valanga nigricornis</i>	P	4	[6(1)7(2)10(1)]
	Lep	<i>Archips machlopis</i>	R	1	[6(1)]
		<i>Conogesthes punctiferalis</i>	P	13	[2,3(1)4,5(3)6(2)9(1)10(2)]
		<i>Conopomorpha cramerella</i>	R	7	[2(1)6(3)9(1)10(2)]
husk boring	Lep	<i>Cryptophlebia encarpa</i>		1	[6(1)]
		<i>Niphonclea albata</i>		2	[10(2)]
stem boring	Lep	<i>Zeuzera coffeae</i>	R	8	[2,5,6,10(2)]
	Col	<i>Xyleborus sp.</i>		1	[5(1)]
		<i>Xyleborus fornicatus</i>		1	[6(1)]
		<i>Xylotandrus compactus</i>	P	2	[5(2)]
sucking	Hem	<i>Bemisia tabaci</i>	PP	10	[2(3)5,6(1)7(3)9(2)]
		<i>Ferrisia virgata</i>	P	4	[2,4(1)10(2)]
		<i>Helopeltis bradyi</i>	R	1	[9(1)]
		<i>Helopeltis theivora</i>	R	9	[5(2)6(3)9,10(2)]
		<i>Icerya pulcher</i>	P	1	[6(1)]
		<i>Planococcus citri</i>	P	7	[2(1)5(3)6,8,9(1)]
		<i>Rastrococcus iceryoides</i>	P	2	[6(2)]
		<i>Toxoptera aurantii</i>	P	6	[2(1)6(2)7(1)10(2)]
	Thy	<i>Heliothrips haemorrhoidalis</i>	P	2	[2,4(1)]
		<i>Thrips hawaiiensis</i>	P	1	[6(1)]
		<i>Xylaphlothrips sp.</i>		1	[6(1)]
	Aca	<i>Aceria tulipae</i>	P	6	[2(1)5(3)10(2)]
		<i>Tetranychus piercei</i>	P	2	[4(2)]
Major weeds		<i>Achryanthes aspera</i>	B	3	[1,9,10(1)]
		<i>Ageratum conyzoides</i>	B	17	[1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Amaranthus spinosus</i>	B	17	[1,2(3)3,4,5(1)6,7(2)9(1)10(3)]
		<i>A. viridis</i>	B	10	[1(1)2(3)3,4,5,7(1)10(2)]
		<i>Asystasia gangetica</i>	B	5	[6(3)7(2)]
		<i>Bidens pilosa</i>	B	10	[1(1)2(2)3,4,5(1)9,10(2)]
		<i>Borreria latifolia</i>	B	7	[6(3)7,9(2)]
		<i>Brachiaria mutica</i>	G	6	[6(2)7,9(1)10(2)]
		<i>Centrotheca lappacea</i>	G	4	[6,7(2)]
		<i>Chromolaena odorata</i>	B	18	[1,2,3,4,5(2)6(3)9(2)10(3)]
		<i>Cleome rutidosperma</i>	B	8	[2(1)6(2)7(3)10(2)]
		<i>Clidemia hirta</i>	B	5	[6,7(2)8(1)]
		<i>Commelina benghalensis</i>	B	10	[1(2)2(3)5(1)9,10(2)]
		<i>C. diffusa</i>	B	8	[2,7,9,10(2)]

Table 13 (continued)

<i>Cyclosorus aridus</i>	<b>F</b> <b>4</b>	[6(2)7,10(1)]
<i>Cynodon dactylon</i>	<b>G</b> <b>18</b>	[1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)]
<i>Cyperus compressus</i>	<b>S</b> <b>9</b>	[1(1)6,7,8,10(2)]
<i>C. rotundus</i>	<b>S</b> <b>27</b>	[1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
<i>Cyrtococcum oxyphyllum</i>	<b>G</b> <b>1</b>	[6(1)]
<i>C. trigonum</i>	<b>G</b> <b>1</b>	[6(1)]
<i>Digitaria ciliaris</i>	<b>G</b> <b>19</b>	[1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)]
<i>D. sanguinalis</i>	<b>G</b> <b>3</b>	[7(1)10(2)]
<i>D. violescens</i>	<b>G</b> <b>4</b>	[6,7(2)]
<i>Echinocloa colonum</i>	<b>G</b> <b>24</b>	[1(2)2,3(3)4(2)5,6(3)7(2)9,10(3)]
<i>Eleusine indica</i>	<b>G</b> <b>24</b>	[1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
<i>Hyptis capitata</i>	<b>B</b> <b>8</b>	[2,5(1)6,7,10(2)]
<i>Imperata cylindrica</i>	<b>G</b> <b>26</b>	[1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
<i>Ipomoea triloba</i>	<b>G</b> <b>4</b>	[1(1)10(3)]
<i>Ischaemum muticum</i>	<b>G</b> <b>5</b>	[6,7(2)10(1)]
<i>Lantana camara</i>	<b>B</b> <b>5</b>	[1,2,6(1)10(2)]
<i>Lygodium flexuosum</i>	<b>B</b> <b>5</b>	[6,7(2)10(1)]
<i>Melastoma malabathricum</i>	<b>B</b> <b>13</b>	[2,3,5(1)6,7,8(3)9(1)]
<i>Mikania micrantha</i>	<b>B</b> <b>11</b>	[6,7(3)8,9(2)10(1)]
<i>Mimosa invisa</i>	<b>B</b> <b>18</b>	[1,2,3(2)4(1)5,6,7,9(2)10(3)]
<i>M. pudica</i>	<b>B</b> <b>17</b>	[1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]
<i>Nephrolepis biserrata</i>	<b>F</b> <b>10</b>	[6(2)7,8(3)10(2)]
<i>Ottochloa nodosa</i>	<b>G</b> <b>4</b>	[1,6(2)]
<i>Panicum repens</i>	<b>G</b> <b>16</b>	[1(1)2(2)5(3)6,7(2)8(1)9(3)10(2)]
<i>Paspalum conjugatum</i>	<b>G</b> <b>15</b>	[5,6(3)7,8(2)9(3)10(2)]
<i>P. scrobiculatum</i>	<b>G</b> <b>7</b>	[6,7,8(2)10(1)]
<i>Pennisetum purpureum</i>	<b>G</b> <b>8</b>	[2,3,4,5,6,7,9,10(1)]
<i>Phyllanthus fraternus</i>	<b>B</b> <b>4</b>	[1,2(1)6(2)]
<i>Portulaca oleracea</i>	<b>B</b> <b>10</b>	[1(1)2(2)5,6,7,9(1)10(3)]
<i>Stenochlaena palustris</i>	<b>F</b> <b>7</b>	[6,7(2)8(3)]
<i>Vernonia cinerea</i>	<b>B</b> <b>5</b>	[6(1)7(2)10(2)]

**COCONUT***Cocos nucifera* PALMAE

Origin: Southeast Asia, Pacific

## Major arthropod pests

leaf eating	Lep	<i>Amathusia phidippus</i>	<b>R</b> <b>3</b>	[2,5,6(1)]
		<i>Archips machlopis</i>	<b>R</b> <b>1</b>	[6(1)]
		<i>Artona catoxantha</i>	<b>R</b> <b>5</b>	[2(1),6,9(2)]
		<i>Calliteara horsfieldii</i>	<b>P</b> <b>1</b>	[6(1)]
		<i>Darna diducta</i>	<b>P</b> <b>2</b>	[2,6(1)]
		<i>Darna trima</i>	<b>PP</b> <b>4</b>	[2(2)6,9(1)]
		<i>Elymnias hypermestra</i>	<b>R</b> <b>1</b>	[5(1)]
		<i>Hidari irava</i>	<b>R</b> <b>3</b>	[6(1),9(2)]
		<i>Mahasena corbetti</i>	<b>R</b> <b>5</b>	[2(2)7(1)]
		<i>Orgyia turbata</i>	<b>P</b> <b>2</b>	[2,6(1)]
		<i>Parasa lepida</i>	<b>PP</b> <b>7</b>	[2,5,6(1)9,10(2)]
		<i>Setora nitens</i>	<b>PP</b> <b>6</b>	[2,3,5,6,7,8(1)]
		<i>Thosea</i> spp.	<b>P</b> <b>3</b>	[7(1)10(2)]
		<i>T. sinensis</i>	<b>P</b> <b>5</b>	[2,3,5(1)10(2)]
		<i>T. vetusta</i>	<b>P</b> <b>1</b>	[6(1)]
Col		<i>Anomala cupripes</i>	<b>P</b> <b>4</b>	[2,5,6,7(1)]
		<i>Anomala pallida</i>	<b>P</b> <b>2</b>	[6,7(1)]
		<i>Apogonia cribicollis</i>	<b>R</b> <b>1</b>	[7(1)]
Ort		<i>Sexava</i> spp.	<b>P</b> <b>3</b>	[9(3)]

leaf mining	Col	<i>Valanga nigricornis</i>	P 4 [6(1)7(2)10(1)]
		<i>Plesispa reichei</i>	O 3 [2,6,7(1)]
		<i>Promecotheca cumingii</i>	R 3 [2,6,9(1)]
flower eating	Lep	<i>Tirathaba</i> sp.	R 1 [9(1)]
		<i>T. rufivena</i>	R 2 [2,6(1)]
shoot boring	Col	<i>Oryctes rhinoceros</i>	O 17 [2,3(2)4(1)5(3)6(2)7,8(1)9(3)10(2)]
		<i>Rhynchophorus ferrugineus</i>	R 10 [2,4(2)5(3)7,9,10(1)]
		<i>R. schach</i>	R 4 [2,6(2)]
		<i>R. vulneratus</i>	R 1 [2(1)]
		<i>Xylotrupes gideon</i>	PP 4 [1,5(2)]
stem boring	Iso	<i>Coptotermes curvignathus</i>	P 4 [2(1)6(2)9(1)]
root damaging	Col	<i>Adoretus compressus</i>	PP 4 [5,6,7,9(1)]
		<i>Leucopholis rorida</i>	P 1 [9(1)]
sucking	Hem	<i>Aleurodicus destructor</i>	P 5 [2,5,6,7,9(1)]
		<i>Aspidiotus destructor</i>	P 7 [2,4,5,6,7,9,10(l)]
		<i>Chrysomphalus aonidum</i>	P 3 [1,2,5(1)]
		<i>Nipaecoccus nipae</i>	P 3 [2(1)5(2)]
		<i>Stephanius typica</i>	P 3 [2,5,7(1)]
Major weeds		<i>Achryanthes aspera</i>	B 3 [1,9,10(1)]
		<i>Ageratum conyzoides</i>	B 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Amaranthus spinosus</i>	B 17 [1,2(3)3,4,5(1)6,7(2)9(1)10(3)]
		<i>A. viridis</i>	B 11 [1(1)2(3)3,4,5,7(1)10(3)]
		<i>Asystasia gangetica</i>	B 6 [6,7(3)]
		<i>Bidens pilosa</i>	B 10 [1(1)2(2)3,4,5(1)9,10(2)]
		<i>Borreria latifolia</i>	B 7 [6(3)7,9(2)]
		<i>Brachiaria mutica</i>	G 6 [6(2)7,9(1)10(2)]
		<i>Centrotheca lappacea</i>	G 4 [6,7(2)]
		<i>Chromolaena odorata</i>	B 18 [1,2,3,4,5(2)6(3)9(2)10(3)]
		<i>Cleome rutidosperma</i>	B 8 [2(1)6(2)7(3)10(2)]
		<i>Clidemia hirta</i>	B 5 [6,7(2)8(1)]
		<i>Commelina benghalensis</i>	B 10 [1(2)2(3)5(1)9,10(2)]
		<i>C. diffusa</i>	B 8 [2,7,9,10(2)]
		<i>Cyclosorus aridus</i>	F 4 [6(2)7,10(1)]
		<i>Cynodon dactylon</i>	G 18 [1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)]
		<i>Cyperus compressus</i>	S 7 [1(1)6,7,10(2)]
		<i>C. rotundus</i>	S 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
		<i>Cyrtococcum oxyphyllum</i>	G 1 [6(1)]
		<i>C. trigonum</i>	G 1 [6(1)]
		<i>Digitaria ciliaris</i>	G 19 [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)]
		<i>D. sanguinalis</i>	G 5 [1(1)7,10(2)]
		<i>D. violescens</i>	G 4 [6,7(2)]
		<i>Echinocloa colonum</i>	G 28 [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
		<i>Eleusine indica</i>	G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Hyptis capitata</i>	B 8 [2,5(1)6,7(2)10(2)]
		<i>Imperata cylindrica</i>	G 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Ipomoea triloba</i>	B 4 [1(1)10(3)]
		<i>Ischaemum muticum</i>	G 5 [6,7(2)10(1)]
		<i>Lantana camara</i>	B 5 [1,2,6(1)10(2)]
		<i>Lygodium flexuosum</i>	B 5 [6,7(2)10(1)]
		<i>Melastoma malabathricum</i>	B 13 [2,3,5(1)6(3)7(2)8(3)9,10(1)]
		<i>Mikania micrantha</i>	B 11 [6,7(3)8,9(2)10(1)]
		<i>Mimosa invisa</i>	B 18 [1,2,3(2)4(1)5,6,7,9(2)10(3)]
		<i>M. pudica</i>	B 17 [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]
		<i>Nephrolepis biserrata</i>	F 10 [6(2)7,8(3)10(2)]
		<i>Ottochloa nodosa</i>	G 4 [1,6(2)]
		<i>Panicum repens</i>	G 16 [1(1)2(2)5(3)6,7(2)8(1)9(3)10(2)]
		<i>Paspalum conjugatum</i>	G 15 [5,6(3)7,8(2)9(3)10(2)]

Table 13 (continued)

<i>P. scrobiculatum</i>	<b>G 7</b>	[6,7,8(2)10(1)]
<i>Pennisetum purpureum</i>	<b>G 8</b>	[2,3,4,5,6,7,9,10(1)]
<i>Phyllanthus fraternus</i>	<b>F 4</b>	[1,2(1)6(2)]
<i>Portulaca oleracea</i>	<b>B 10</b>	[1(1)2(2)5,6,7,9(1)10(3)]
<i>Stenochlaena palustris</i>	<b>F 7</b>	[6,7(2)8(3)]
<i>Vernonia cinerea</i>	<b>B 5</b>	[6(1)7(2)10(2)]

**COFFEE**(a) *Coffea arabica*      (b) *Coffea canephora*  
Origin: (a) Ethiopia, (b) West Africa & Uganda

## RUBIACEAE

## Major arthropod pests

leaf eating	Lep	<i>Cephalodes hylas</i>	<b>R 2</b>	[6,7(1)]
		<i>Parasa lepida</i>	<b>PP 7</b>	[2,5,6(1)9,10(2)]
bean boring	Lep	<i>Ephesia cauella</i>	<b>P 2</b>	[6,7(1)]
	Col	<i>Araecerus fasciculatus</i>	<b>P 6</b>	[2,6,7,9(1)10(2)]
stem boring	Lep	<i>Hypothenemus hampei</i>	<b>R 12</b>	[2,3(1)5,6(2)8(1)9(2)10(3)]
	Col	<i>Zeuzera coffeae</i>	<b>R 8</b>	[2,5,6,10(2)]
		<i>Xylosandrus compactus</i>	<b>P 2</b>	[5(2)]
sucking	Hem	<i>Xylotrechus quadripes</i>	<b>R 5</b>	[2,3(1)5(3)]
		<i>Coccus viridis</i>	<b>P 7</b>	[2,4(1)5(2)7(1)9(2)]
		<i>Ferrisia virgata</i>	<b>P 4</b>	[2,4(1)10(2)]
		<i>Pseudococcus</i> sp.	<b>P 3</b>	[2(1)5(2)]
		<i>Saissetia coffeae</i>	<b>P 2</b>	[2,6(1)]
		<i>Toxoptera aurantii</i>	<b>P 6</b>	[2(1)6(2)7(1)10(2)]
Major weeds		<i>Asystasia intrusa</i>	<b>B 5</b>	[6(3)7(2)]
		<i>Axonopus compressus</i>	<b>G 8</b>	[2(1)6,7(3)9(1)]
		<i>Borreria latifolia</i>	<b>B 7</b>	[6(3)7,9(2)]
		<i>Chromolaena odorata</i>	<b>B 18</b>	[1,2,3,4,5(2)6(3)9(2)10(3)]
		<i>Cynodon dactylon</i>	<b>G 18</b>	[1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)]
		<i>Cyperus rotundus</i>	<b>S 27</b>	[1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
		<i>Digitaria ciliaris</i>	<b>G 19</b>	[1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)]
		<i>D.sanguinalis</i>	<b>G 5</b>	[1(1)7,10(2)]
		<i>Echinochloa colonum</i>	<b>G 28</b>	[1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
		<i>Eleusine indica</i>	<b>G 24</b>	[1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Paspalum conjugatum</i>	<b>G 15</b>	[5,6(3)7,8(2)9(3)10(2)]

**CORKWOOD TREE***Sesbania cannabina*  
Origin: Asia

## FABACEAE

## Major arthropod pests

leaf eating	Lep	<i>Eurema hecabe</i>	<b>R 2</b>	[5,7(1)]
		<i>Porthesia scintillans</i>	<b>P 3</b>	[2,5,6(1)]
		<i>Spodoptera litura</i>	<b>P 22</b>	[1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
seed borer	Hym	<i>Bruchophagus mutabilis</i>	<b>3</b>	[5(3)]
sucking	Hem	<i>Aphis craccivora</i>	<b>P 15</b>	[1,2,3,4(1)5(3)6,7(1)8,9,10(2)]
		<i>Coptosoma japonicum</i>	<b>R 1</b>	[5(1)]
		<i>Empoasca flavesrens</i>	<b>P 7</b>	[1(1)5(3)6(1)9(2)]
		<i>Nezara viridula</i>	<b>PP 10</b>	[1(2)2,3,4(1)5(2)6,7,9(1)]
		<i>Piezodorus hybneri</i>	<b>R 4</b>	[2,4,5,10(1)]

**COTTON**

*Gossypium* spp. MALVACEAE  
Origin: Africa, Asia, Australia, America

## Major insect pests

leaf eating	Lep	<i>Anomis flava</i> <i>Archips machlopis</i> <i>Omphisa anastomosalis</i> <i>Spodoptera exempta</i> <i>S. exigua</i> <i>S. litura</i> <i>Syllepte derogata</i>	<b>R</b> 9 [2,4(1)5(3)6,10(2)] <b>R</b> 1 [6(1)] <b>O</b> 7 [2,3(1)4(2)5,6,7(1)] 2 [10(2)]
boll attacking	Col	<i>Hypomeces squamosus</i>	<b>PP</b> 5 [2(2)5(3)]
	Lep	<i>Earias vittella</i> <i>Helicoverpa armigera</i> <i>Pectinophora gossypiella</i>	<b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)] <b>R</b> 6 [1,2,4,5,6,7(1)]
	Col	<i>Amorphoidea lata</i>	<b>PP</b> 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)] <b>R</b> 15 [1,2(2)3,4(1)5,6(2)7(1)8,9(2)]
stem boring	Lep	<i>Araecerus fasciculatus</i>	<b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
sucking	Hem	<i>Zeuzera coffeae</i> <i>Amrasca devastans</i> <i>Aphis gossypii</i>	<b>O</b> 10 [1(2)2,3,4,5(1)9,10(2)] <b>O</b> 1 [10(1)] <b>P</b> 6 [2,5,6,9(1)10(2)] <b>R</b> 8 [2,5,6,10(2)] <b>O</b> 15 [1(3)2(2)3(1)5,9,10(3)] <b>P</b> 19 [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2) 10(3)]
		<i>Dysdercus cingulatus</i> <i>Empoasca sp.</i> <i>Nezara viridula</i>	<b>R</b> 12 [1,2,3(1)4(1)5(2)6,7(1)9,10(2)] <b>P</b> 7 [2(2)4(3)6,7(1)]
	Thy	<i>Scirtothrips dorsalis</i> <i>Thrips flavus</i>	<b>PP</b> 10 [1(2)2,3,4(1)5(2)6,7,9(1)] <b>P</b> 5 [1,2(2)6(1)] <b>1</b> [2(1)]
Major weeds		<i>Cynodon dactylon</i> <i>Cyperus rotundus</i> <i>Dactyloctenium aegyptium</i> <i>Digitaria sanguinalis</i> <i>Echinochloa crusgalli</i> <i>Eleusine indica</i> <i>Leptochloa chinensis</i> <i>Ludwigia hyssopifolia</i> <i>Portulaca oleracea</i> <i>Trianthema portulacastrum</i> <i>Tridax procumbens</i>	<b>G</b> 18 [1,2(2)3,4(1)5(2)6(3)7(2)9(3)10(1)] <b>S</b> 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)] <b>G</b> 8 [1,2(2)7,9(1)10(2)] <b>G</b> 5 [1(1)7,10(2)] <b>G</b> 21 [2(3)3(1)4(2)5,6(3)7(2)9,10(3)] <b>G</b> 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)] <b>G</b> 14 [1(3)2,5(2)6(3)9,10(2)] <b>B</b> 8 [1(3)2,6(2)10(1)] <b>B</b> 10 [1(1)2(2)5,6,7,9(1)10(3)] <b>B</b> 8 [1(3)2(2)10(3)] <b>B</b> 8 [1(1)2(2)6(1)7(2)10(2)]

**COWPEA**

*Vigna unguiculata* FABACEAE

Origin: North Africa

## Major arthropod pests

leaf eating	Lep	<i>Adoxophyes privatana</i> <i>Agrius convolvuli</i> <i>Aproaerema modicella</i> <i>Archips machlopis</i> <i>Helicoverpa armigera</i> <i>Homona coffearia</i> <i>Hyposidra talaca</i> <i>Lamprosema diemenalis</i> <i>Olene mendosa</i> <i>Orgyia turbata</i>	<b>P</b> 1 [7(1)] <b>P</b> 7 [2,4(1)5(2)6(1)9(2)] <b>R</b> 11 [1(2)2(1)3(2)4(3)6,9,10(1)] <b>R</b> 1 [6(1)]
			<b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
			<b>P</b> 3 [6,7,9(1)]
			<b>P</b> 2 [6,9(1)]
			<b>R</b> 4 [2,3,6,7(1)]
			<b>P</b> 4 [4,6(1)10(2)]
			<b>P</b> 2 [2,6(1)]

Table 13 (continued)

		<i>Parasa lepida</i>	PP 7 [2,5,6(1)9,10(2)]
		<i>Porthesia scintillans</i>	P 3 [2,5,6(1)]
		<i>Spodoptera litura</i>	PP 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Syllepte derogata</i>	R 6 [1,2,4,5,6,7(1)]
		<i>Tiracola plagiata</i>	P 2 [2,6(1)]
Col		<i>Anomala pallida</i>	P 2 [6,7(1)]
		<i>Hypomeces squamosus</i>	PP 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
		<i>Phyllotreta vittata</i>	R 1 [9(1)]
Ort		<i>Nomadacris succinata</i>	P 5 [2,3(2)5(1)]
		<i>Valanga nigricornis</i>	P 4 [6(1)7(2)10(1)]
leaf mining	Dip	<i>Ophiomyia phaseoli</i>	R 14 [1,2(1)3,5,6(2)7(1)9(3)10(2)]
pod boring	Lep	<i>Euchrysops cneus</i>	R 5 [6,7(1)10(3)]
		<i>Lampides boeticus</i>	R 5 [2(1)5(2)6,7(1)]
		<i>Maruca testulalis</i>	R 17 [1,2,3(1)4,5(3)6(2)7(1)8(3)9,10(1)]
sucking	Col	<i>Callosobruchus chinensis</i>	R 8 [1,2(1)5,6(2)7,9(1)]
	Hem	<i>Aphis craccivora</i>	P 15 [1,2,3,4(1)5(3)6,7(1)8,9,10(2)]
		<i>Eysarcoris guttiger</i>	1 [1(1)]
		<i>Jacobiasca formosana</i>	P 3 [2,6,7(1)]
		<i>Leptocoris acuta</i>	R 11 [2,4(1)5,6(2)9(3)10(2)]
		<i>Nezara viridula</i>	PP 10 [1(2)2,3,4(1)5(2)6,7,9(1)]
Major weeds		<i>Ageratum conyzoides</i>	B 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Gomphrena celosioides</i>	B 5 [1(1)2(2)5,10(1)]
		<i>Richardia brasiliensis</i>	B 5 [1(2)2(3)]

**CUCUMBER***Cucumis sativus*

Origin: India

## CUCURBITACEAE

## Major insect pests

leaf eating	Lep	<i>Amsacta lactinea</i>	P 1 [5(1)]
		<i>Chrysodeixis eriosoma</i>	P 5 [4,5,6(1)10(2)]
	Col	<i>Aulacophora foveicollis</i>	R 4 [1,2(1)6(2)]
		<i>A. similis</i>	P 9 [2,3(1)5(3)6,8(1)9(2)]
		<i>Epilachna indica</i>	R 1 [7(1)]
fruit damaging	Lep	<i>Diaphania indica</i>	R 7 [2,4(1)5(2)6,7,8(1)]
	Dip	<i>Bactrocera cucurbitae</i>	P 25 [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
sucking	Hem	<i>Aphis gossypii</i>	P 19 [1(2)2(3)3(1)4,5,6(2)7,8(1)9,10(2)]
	Thy	<i>Megymenum brevicornis</i>	P 2 [5,6(1)]
		<i>Haplothrips floricola</i>	R 2 [2(2)]
		<i>Thrips palmi</i>	P 12 [1(1)2(2)6(3)7,8,9(1)10(3)]

**CUCURBITS**

Cucumber: *Cucumis sativus*, India; melons: *Cucumis melo*, Africa; watermelon: *Citrullus lanatus*, Tropical & Subtropical Africa; pumpkin: *Cucurbita maxima*, South America; squash, marrow: *Cucurbita pepo*, Mexico; luffa: Asia. CUCURBITACEAE

## Major arthropod pests

leaf eating	Lep	<i>Spoladea recurvalis</i>	1 [4(1)]
	Col	<i>Aulacophora femoralis</i>	R 3 [2(1)5(2)]
		<i>A. flavomarginata</i>	O 3 [6(2)8(1)]
		<i>A. foveicollis</i>	R 4 [1,2(1)6(2)]
		<i>A. frontalis</i>	R 4 [2,3,5,7(1)]

		<i>A. lewisi</i>	<b>1</b>	[6(1)]
		<i>A. similis</i>	<b>P 9</b>	[2,3(1)5(3)6,8(1)9(2)]
		<i>Epilachna indica</i>	<b>R 1</b>	[7(1)]
		<i>E. 28-punctata</i>	<b>R 8</b>	[1,2,5(2)6,9(1)]
		<i>Rhaphidopalpa</i> sp.	<b>1</b>	[4(1)]
fruit damaging	Lep	<i>Diaphania indica</i>	<b>R 7</b>	[2,4(1)5(2)6,7,8(1)]
	Dip	<i>Bactrocera cucurbitae</i>	<b>P 25</b>	[1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
		<i>B. tau</i>	<b>3</b>	[2,5,8(1)]
sucking	Hem	<i>Aphis gossypii</i>	<b>P 19</b>	[1(2)2(3)3(1)4,5,6(2)7,8(1)9(2) 10(3)]
		<i>Coridius fuscus</i>	<b>R 2</b>	[5(2)]
		<i>Leptoglossus gonagra</i>	<b>P 6</b>	[2,6(1)8,10(2)]
		<i>Megymenum brevicornis</i>	<b>P 2</b>	[5,6(1)]
		<i>Parabemisia myricae</i>	<b>R 1</b>	[5(1)]
	Thy	<i>Haplothrips floricola</i>	<b>R 2</b>	[2(2)]
		<i>Taeniothrips</i> sp.	<b>R 3</b>	[5(3)]
		<i>Thrips palmi</i>	<b>P 12</b>	[1(1)2(2)6(3)7,8,9(1)10(3)]
		<i>T. parvispinus</i>	<b>P 4</b>	[6(1)9(3)]
	Aca	<i>Tetranychus</i> spp.	<b>P 8</b>	[1(1)5(2)6,7,8(1)10(2)]

**CUSTARD APPLE***Annona squamosa* ANNONACEAE

Origin: Central America

## Major arthropod pests

leaf eating	Lep	<i>Archips micaceanus</i>	<b>P 6</b>	[2(1)3(2)5,6,7(1)]
		<i>Attacus atlas</i>	<b>P 5</b>	[2,5,6,7,9(1)]
sucking	Hem	<i>Aleurodicus destructor</i>	<b>P 5</b>	[2,5,6,7,9(1)]
		<i>Cataenococcus hispidus</i>	<b>P 2</b>	[2,6(1)]
		<i>Planococcus citri</i>	<b>P 7</b>	[2(1)5(3)6,8,9(1)]

**DURIAN***Durio zibethinus* BOMBACACEAE

Origin: Malaysia

## Major arthropod pests

leaf eating	Lep	<i>Archips machlopis</i>	<b>R 1</b>	[6(1)]
		<i>Archips micaceanus</i>	<b>P 6</b>	[2(1)3(2)5,6,7(1)]
		<i>Cremastopsyche pendula</i>	<b>O 2</b>	[6,7(1)]
		<i>Homona coffearia</i>	<b>P 3</b>	[5,6,9(1)]
		<i>Mahasena corbetti</i>	<b>R 5</b>	[2,6(2)7(1)]
		<i>Olene mendosa</i>	<b>P 4</b>	[4,6(1)10(2)]
		<i>Orgyia postica</i>	<b>P 7</b>	[2,3,5,6,9(1)10(2)]
		<i>Orgyia turbata</i>	<b>P 2</b>	[2,6(1)]
		<i>Oxyodes scrobiculata</i>	<b>O 1</b>	[2(1)]
		<i>Syllepte derogata</i>	<b>R 6</b>	[1,2,4,5,6,7(1)]
Col		<i>Hypomeces squamosus</i>	<b>PP 14</b>	[1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
fruit damaging	Lep	<i>Conogethes punctiferalis</i>	<b>P 13</b>	[2,3(1)4,5(3)6(2)9(1)10(2)]
		<i>Mudaria magniplaga</i>	<b>2</b>	[6(2)]
stem boring	Lep	<i>Zeuzera coffeae</i>	<b>P 8</b>	[2,5,6,10(2)]
	Col	<i>Xyleborus apertus</i>	<b>R 2</b>	[8(2)]
sucking	Hem	<i>Allocarsidaria malayensis</i>	<b>O 5</b>	[2,6(2)7(1)]
		<i>Aspidiota destructor</i>	<b>P 7</b>	[2,4,5,6,7,9,10(1)]
		<i>Asterolecanium ungulatum</i>	<b>2</b>	[8(2)]

Table 13 (continued)

Aca	<i>Icerya pulcher</i> <i>Eutetranychus africanus</i>	P 1 [6(1)] P 3 [2(3)]	
Major weeds	<i>Asystasia intrusa</i> <i>Borreria latifolia</i> <i>Chromolaena odorata</i> <i>Digitaria ciliaris</i> <i>Eleusine indica</i> <i>Euphorbia heterophylla</i> <i>Imperata cylindrica</i> <i>Mikania micrantha</i> <i>Mimosa pudica</i> <i>Ottochloa nodosa</i> <i>Paspalum conjugatum</i> <i>P. scrobiculatum</i>	B 5 [6(3)7(2)] B 7 [6(3)7,9(2)] B 18 [1,2,3,4,5(2)6(3)9(2)10(3)] G 19 [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)] G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)] B 10 [1(1)2(3)3,4,5(1)6(2)10(1)] G 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)] B 11 [6,7(3)8,9(2)10(1)] B 17 [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)] G 4 [1,6(2)] G 15 [5,6(3)7,8(2)9(3)10(2)] G 7 [6,7,8(2)10(1)]	
<b>EGG PLANT</b>			
<i>Solanum melongena</i>	SOLANACEAE		
Origin:	India		
Major arthropod pests			
leaf eating	Lep	<i>Acherontia lachesis</i> <i>Acherontia styx</i> <i>Amsacta lactinea</i> <i>Archips tabescens</i> <i>Chrysodeixis eriosoma</i> <i>Glyphodes pulverulentalis</i> <i>Olene mendosa</i> <i>Xanthodes transversa</i>	P 4 [2,3,4,5(1)] R 3 [2,3,4(1)] P 1 [5(1)] P 1 [6(1)] P 5 [4,5,6(1)10(2)] R 3 [5(2)6(1)] P 4 [4,6(1)10(2)] R 1 [6(1)]
	Col	<i>Aulacophora similis</i> <i>Epilachna indica</i> <i>Epilachna vigintioctopunctata</i>	P 9 [2,3(1)5(3)6,8(1)9(2)] R 1 [7(1)] R 8 [1,2,5(2)6,9(1)]
fruit & stem boring	Lep	<i>Araecerus fasciculatus</i> <i>Leucinodes orbonalis</i>	P 6 [2,5,6,9(1)10(2)] R 15 [1(2)2,3(1)4(2)5(3)6(2)7(1)8(3)]
fruit damaging	Dip	<i>Bactrocera dorsalis</i>	PP 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
root eating	Col	<i>Anomala pallida</i>	P 2 [6,7(1)]
sucking	Hem	<i>Amrasca</i> sp. <i>Aphis gossypii</i>	P 4 [1(2)9(3)] P 19 [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2) 10(3)]
		<i>Myzus persicae</i> <i>Planococcus citri</i> <i>Urentius hystricellus</i>	P 12 [2,3(1)5(3)6(2)7(1)9,10(2)] P 7 [2(1)5(3)6,8,9(1)] O 2 [4(2)]
	Thy	<i>Thrips flavus</i> <i>T. palmi</i>	P 1 [2(1)] P 12 [1(1)2(2)6(3)7,8,9(1)10(3)]

**FIG**

*Ficus* spp. MORACEAE  
Origin: Indo-Malaysia

## Major Arthropod pests

leaf eating	Lep	<i>Asota</i> spp. <i>Euproctis</i> spp. <i>Glyphodes caesalis</i>	O 1 [9(1)] 1 [10(1)] R 7 [5(3)6,7(1)8(2)]
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Table 13 (continued)

		<i>Tiracola plagiata</i>	<b>P</b> <b>2</b>	[2,6(1)]
Col		<i>Apriona germari</i>	<b>R</b> <b>2</b>	[3,5(1)]
		<i>Batocera rubus</i>	<b>P</b> <b>4</b>	[2,5(1)10(2)]
sucking	Thy	<i>Gynaikothrips ficorum</i>	<b>O</b> <b>1</b>	[2(1)]

**GAMBIR***Uncaria gambir* RUBIACEAE

Origin: Malaysia

## Major arthropod pests

leaf eating	Lep	<i>Attacus atlas</i>	<b>P</b> <b>5</b>	[2,5,6,7,9(1)]
		<i>Dichocrocis megillalis</i>	<b>O</b> <b>1</b>	[9(1)]
		<i>Olene mendosa</i>	<b>P</b> <b>4</b>	[4,6(1)10(2)]
sucking	Hem	<i>Pinnaspis aspidistrae</i>	<b>P</b> <b>3</b>	[6(1)10(2)]

**GARLIC***Allium sativum* ALLIACEAEOrigin: Central Asia  
see onion for pests.**GINGER***Zingiber officinale* ZINGIBERACEAE

Origin: Southeast Asia

## Major arthropod pests

leaf eating	Lep	<i>Spodoptera exempta</i>	<b>P</b> <b>2</b>	[10(2)]
		<i>Spodoptera litura</i>	<b>PP</b> <b>22</b>	[1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
	Ort	<i>Nomadacris succinata</i>	<b>P</b> <b>6</b>	[2,3,5(2)]
shoot & root boring	Lep	<i>Conogethes punctiferalis</i>	<b>P</b> <b>13</b>	[2,3(1)4,5(3)6(2)9(1)10(2)]
sucking	Hem	<i>Dysmicoccus brevipes</i>	<b>P</b> <b>10</b>	[4(1)5(3)6,9,10(2)]

**GROUNDNUT (PEANUT)***Arachis hypogaea* FABACEAE

Origin: South America

## Major arthropod pests

leaf eating	Lep	<i>Adoxophyes privatana</i>	<b>P</b> <b>1</b>	[7(1)]
		<i>Agrotis ipsilon</i>	<b>P</b> <b>11</b>	[1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>Amsacta lactinea</i>	<b>P</b> <b>1</b>	[5(1)]
		<i>Archips tabescens</i>	<b>P</b> <b>1</b>	[6(1)]
		<i>Chrysodeixis eriosoma</i>	<b>P</b> <b>5</b>	[4,5,6(1)10(2)]
		<i>Hedylepta indicata</i>	<b>R</b> <b>7</b>	[2(1)3,5,10(2)]
		<i>Helicoverpa armigera</i>	<b>PP</b> <b>26</b>	[1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
		<i>Homona coffearia</i>	<b>P</b> <b>3</b>	[6,7,9(1)]
		<i>Lamprosema diemenalis</i>	<b>R</b> <b>4</b>	[2,3,6,7(1)]
		<i>Olene mendosa</i>	<b>P</b> <b>4</b>	[4,6(1)10(2)]
		<i>Orgyia turbata</i>	<b>P</b> <b>2</b>	[2,6(1)]
		<i>Porthesia scintillans</i>	<b>P</b> <b>3</b>	[2,5,6(1)]
		<i>Spodoptera litura</i>	<b>PP</b> <b>22</b>	[1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Spoladea recurvalis</i>	<b>1</b>	[4(1)]

Table 13 (continued)

	Col	<i>Anomala</i> spp.	
		<i>A. antiqua</i>	<b>P</b> 7 [1(3)5,10(2)]
		<i>A. varians</i>	<b>P</b> 6 [1(3)2,5,9(1)]
		<i>Epicauta maklini</i>	<b>2</b> [1(2)]
		<i>Monolepta signata</i>	<b>R</b> 1 [2(1)]
		<i>Mylabris phalerata</i>	<b>1</b> [4(1)]
		<i>Phyllotreta cruciferae</i>	<b>P</b> 2 [2,5(1)]
		<i>P. flexuosa</i>	<b>P</b> 2 [6,7(1)]
		<i>Platymycteris sieversi</i>	<b>R</b> 3 [2,3,6(1)]
			<b>2</b> [5(2)]
	Hym	<i>Dorylus orientalis</i>	<b>P</b> 1 [2(1)]
	Ort	<i>Valanga nigricornis</i>	<b>P</b> 4 [6(1)7(2)10(1)]
leaf mining	Lep	<i>Aproaerema modicella</i>	<b>R</b> 11 [1(2)2(1)3(2)4(3)6,9,10(1)]
	Dip	<i>Ophiomyia phaseoli</i>	<b>R</b> 14 [1,2(1)3,5,6(2)7(1)9(3)10(2)]
	bean boring	<i>Etiella zinckenella</i>	<b>R</b> 8 [2(1)5(3)6(1)9(2)10(1)]
	Lep	<i>Euchrysops cneus</i>	<b>R</b> 5 [6,7(1)10(3)]
		<i>Maruca testulalis</i>	<b>R</b> 17 [1,2,3(1)4,5(3)6(2)7(1)8(3)9,10(1)]
root feeding	Col	<i>Hypomeces squamosus</i>	<b>PP</b> 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
	Iso	<i>Odontotermes</i> sp.	<b>P</b> 1 [2(1)]
sucking	Hem	<i>Aphis craccivora</i>	<b>P</b> 15 [1,2,3,4(1)5(3)6,7(1)8,9,10(2)]
		<i>Nezara viridula</i>	<b>PP</b> 10 [1(2)2,3,4(1)5(2)6,7,9(1)]
	Thy	<i>Caliothrips indicus</i>	<b>1</b> [2(1)]
		<i>Scirtothrips dorsalis</i>	<b>P</b> 5 [1,2(2)6(1)]
	Aca	<i>Tetranychus kanzawai</i>	<b>P</b> 1 [6(1)]
		<i>T. pierci</i>	<b>P</b> 2 [4(2)]
Major weeds		<i>Ageratum conyzoides</i>	<b>B</b> 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Amaranthus spinosus</i>	<b>B</b> 17 [1,2(3)3,4,5(1)6,7(2)9(1)10(3)]
		<i>Borreria articularis</i>	<b>B</b> 1 [1(1)]
		<i>Celosia argentea</i>	<b>B</b> 6 [1,9,10(2)]
		<i>Chloris inflata</i>	<b>G</b> 9 [1(1)2(2)5(3)7(1)10(2)]
		<i>Cynodon dactylon</i>	<b>G</b> 18 [1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)]
		<i>Cyperus iria</i>	<b>S</b> 23 [1,2(2)3(3)4(2)5,6(3)7(1)8(3)9,10(2)]
		<i>C. rotundus</i>	<b>S</b> 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
		<i>Dactyloctenium aegyptium</i>	<b>G</b> 8 [1,2(2)7,9(1)10(2)]
		<i>Digitaria sanguinalis</i>	<b>G</b> 5 [1(1)7,10(2)]
		<i>Echinochloa colonum</i>	<b>G</b> 28 [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
		<i>Eclipta prostrata</i>	<b>B</b> 13 [1(1)2,5(2)6(3)7(2)9(1)10(2)]
		<i>Eleusine indica</i>	<b>G</b> 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Imperata cylindrica</i>	<b>G</b> 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Mentha arvensis</i>	<b>B</b> 3 [1(1)5(2)]
		<i>Mitracarpus villosus</i>	<b>B</b> 5 [1(3)9(2)]
		<i>Panicum repens</i>	<b>G</b> 16 [1(1)2(2)5(3)6,7(2)8(1)9(3)10(1)]
		<i>Paspalum conjugatum</i>	<b>G</b> 15 [5,6(3)7,8(2)9(3)10(2)]
		<i>Portulaca oleracea</i>	<b>B</b> 10 [1(1)2(2)5,6,7,9(1)10(3)]
		<i>Rottboellia cochinchinensis</i>	<b>G</b> 12 [1(1)2(2)3,5,6(1)9,10(3)]
		<i>Tridax procumbens</i>	<b>B</b> 8 [1(1)2(2)6(1)7,10(2)]

**GUAVA**

*Psidium guajava* MYRTACEAE  
Origin: West Indies, Central America

## Major arthropod pests

leaf eating	Lep	<i>Amsacta lactinea</i>	<b>P</b> 1 [5(1)]
		<i>Attacus atlas</i>	<b>P</b> 5 [2,5,6,7,9(1)]
		<i>Calliteara horsfieldii</i>	<b>P</b> 1 [6(1)]

Table 13 (continued)

		<i>Crematopsyche pendula</i>	<b>O</b> <b>2</b> [6,7(1)]
		<i>Lymantria monacha</i>	<b>P</b> <b>2</b> [5(2)]
		<i>Porthesia scintillans</i>	<b>P</b> <b>3</b> [2,5,6(1)]
Col	Dip	<i>Hypomeces squamosus</i>	<b>PP</b> <b>14</b> [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
fruit damaging		<i>Bactrocera cucurbitae</i>	<b>P</b> <b>25</b> [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
		<i>Bactrocera dorsalis</i>	<b>PP</b> <b>26</b> [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>Bactrocera latifrons</i>	<b>R</b> <b>6</b> [2(1)6,8(2)9(1)]
Col	Hem	<i>Hypothenemus psidii</i>	<b>R</b> <b>1</b> [10(1)]
sucking		<i>Aleurodicus dispersus</i>	<b>P</b> <b>22</b> [1(2)2(3)3(2)5,6(3)7(1)8(3)9(2) 10(3)]
		<i>Aphis gossypii</i>	<b>P</b> <b>19</b> [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2)10(3)]
		<i>Ferrisia virgata</i>	<b>P</b> <b>4</b> [2,4(1)10(2)]
		<i>Helopeltis theivora</i>	<b>R</b> <b>9</b> [5(2)6(3)9,10(2)]
		<i>Icerya seychellarum</i>	<b>P</b> <b>1</b> [2(1)]
		<i>Planococcus citri</i>	<b>P</b> <b>7</b> [2(1)5(3)6,8,9(1)]
Major weeds		<i>Asystasia intrusa</i>	<b>B</b> <b>5</b> [6(3)7(2)]
		<i>Borreria latifolia</i>	<b>B</b> <b>7</b> [6(3)7,9(2)]
		<i>Eleusine indica</i>	<b>G</b> <b>24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Imperata cylindrica</i>	<b>G</b> <b>26</b> [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Lygodium flexuosum</i>	<b>B</b> <b>5</b> [6,7(2)10(1)]
		<i>Mimosa pudica</i>	<b>B</b> <b>17</b> [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]
		<i>Paspalum conjugatum</i>	<b>G</b> <b>15</b> [5,6(3)7,8(2)9(3)10(2)]
<b>IPOMOEA</b>			
		<i>Ipomoea aquatica</i>	CONVOLVULACEAE
Origin:	Tropical Asia		
Major arthropod pests			
leaf eating	Lep	<i>Acherontia lachesis</i>	<b>P</b> <b>4</b> [2,3,4,5(1)]
		<i>Agrius convolvuli</i>	<b>P</b> <b>7</b> [2,4(1)5(2)6(1)9(2)]
		<i>Agrotis ipsilon</i>	<b>P</b> <b>11</b> [1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>Spodoptera litura</i>	<b>PP</b> <b>22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
Col	Lep	<i>Aspidomorpha miliaris</i>	<b>R</b> <b>4</b> [2(1)5(2)9(1)]
stem boring	Lep	<i>Omphisa anastomosalis</i>	<b>O</b> <b>7</b> [2,3(1)4(2)5,6,7(1)]
sucking	Hem	<i>Acanthocoris scaber</i>	<b>P</b> <b>2</b> [5(2)]
		<i>Aphis gossypii</i>	<b>P</b> <b>19</b> [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2) 10(3)]

<b>JACKFRUIT (NANGKA)</b>			
		<i>Artocarpus heterophyllus</i>	MORACEAE
Origin:	India		

## Major arthropod pests

leaf eating	Lep	<i>Archips tabescens</i>	<b>P</b> <b>1</b> [6(1)]
		<i>Darna diducta</i>	<b>P</b> <b>2</b> [2,6(1)]
		<i>Homona coffearia</i>	<b>P</b> <b>3</b> [5,6,9(1)]
		<i>Olene mendosa</i>	<b>P</b> <b>4</b> [3,6(1)10(2)]
Col		<i>Anomala</i> spp.	<b>7</b> [1(3)5,10(2)]
		<i>Hypomeces squamosus</i>	<b>PP</b> <b>14</b> [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
		<i>Lepidiota bimaculata</i>	<b>R</b> <b>1</b> [5(1)]
bark boring	Lep	<i>Arbela dea</i>	<b>R</b> <b>1</b> [5(1)]
stem boring	Col	<i>Apriona germari</i>	<b>R</b> <b>2</b> [3,5(1)]
		<i>Batocera rubus</i>	<b>P</b> <b>4</b> [2,5(1)10(2)]

Table 13 (continued)

fruit damaging	Lep	<i>Glyphodes caesalis</i>	R	7	[5(3)6,7(1)8(2)]
	Col	<i>Araecerus fasciculatus</i>	P	6	[2,6,7,9(1)10(2)]
	Dip	<i>Bactrocera dorsalis</i>	PP	26	[1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>B. umbrosa</i>	P	9	[2(1)6(2)7(1)8(2)9(1)10(2)]
sucking	Hem	<i>Ferrisia virgata</i>	P	4	[2,4(1)10(2)]
		<i>Toxoptera aurantii</i>	P	6	[2(1)6(2)7(1)10(2)]
Major weeds		<i>Asystasia intrusa</i>	B	5	[6(3)7(2)]
		<i>Borreria latifolia</i>	B	7	[6(3)7,9(2)]
		<i>Eleusine indica</i>	G	24	[1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Imperata cylindrica</i>	G	26	[1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Mimosa invisa</i>	B	18	[1,2,3(2)4(1)5,6,7,9(2)10(3)]
		<i>Ottochloa nodosa</i>	G	4	[1,6(2)]

**JUJUBA**

*Zizyphus mauritiana* RHAMNACEAE  
Origin: Africa, Asia

## Major arthropod pests

leaf eating	Lep	<i>Achaea janata</i>	P	8	[1(1)2(2)3(1)4(2)5,6(1)]
		<i>Archips micaceanus</i>	P	6	[2(1)3(2)5,6,7(1)]
		<i>Mythimna separata</i>	R	8	[1(2)2(1)3,4(2)9(1)]
fruit boring		<i>Meridarchis scyrodes</i>	O	1	[2(1)]

**JUTE**

*Corchorus capsularis* TILIACEAE  
Origin: China

## Major arthropod pests

leaf eating	Lep	<i>Spodoptera littura</i>	PP	22	[1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
stem boring	Col	<i>Apion collare</i>	R	1	[5(1)]
		<i>A. corchori</i>	R	2	[1(2)]
root eating	Col	<i>Hypomeces squamosus</i>	PP	14	[1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
sucking	Hem	<i>Amrasca devastans</i>	O	15	[1(3)2(2)3(1)5,9,10(3)]
		<i>Dysdercus cingulatus</i>	R	12	[1,2,3,4(1)5(2)6,7(1)9,10(2)]
		<i>Empoasca</i> sp.	P	7	[2(2)4(3)6,7(1)]
	Aca	<i>Tetranychus urticae</i>	PP	11	[2(1)5,6(2)7(1)9(3)10(2)]

**KAPOK**

*Ceiba pentandra* BOMBACACEAE  
Origin: Tropical America, West Africa to Southeast Asia

## Major arthropod pests

leaf eating	Lep	<i>Mahasena corbetti</i>	R	5	[2,6(2)7(1)]
		<i>Olene mendosa</i>	P	4	[4,6(1)10(2)]
	Col	<i>Adoretus compressus</i>	PP	4	[5,6,7,9(1)]
		<i>Hypomeces squamosos</i>	PP	14	[1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
fruit boring	Col	<i>Araecerus fasciculatus</i>	P	6	[1,6,7,9(1)10(2)]
stem boring	Lep	<i>Zeuzera coffeae</i>	R	8	[2,5,6,10(2)]
shoot boring	Col	<i>Alcidodes leeuweni</i>	O	4	[8,9(2)]
pod boring	Lep	<i>Mudaria variabilis</i>	O	3	[3(2)9(1)]
sucking	Hem	<i>Dysdercus cingulatus</i>	R	12	[1,2,3,4(1)5(2)6,7(1)9,10(2)]

**KENAF (HEMP or JUTE)***Hibiscus cannabinus* MALVACEAE

Origin: Africa

## Major arthropod pests

leaf eating	Lep	<i>Agrotis ipsilon</i>	<b>P 11</b> [1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>Anomis flava</i>	<b>R 9</b> [2,4(1)5(3)6,10(2)]
		<i>Helicoverpa armigera</i>	<b>PP 26</b> [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
		<i>Spodoptera litura</i>	<b>PP 22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Syphlepte derogata</i>	<b>R 6</b> [1,2,4,5,6,7(1)]
	Col	<i>Platymycteris sieversi</i>	<b>2</b> [5(2)]
root eating	Col	<i>Hypomeces squamosus</i>	<b>PP 14</b> [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
sucking	Hem	<i>Amrasca devastans</i>	<b>O 15</b> [1(3)2(2)3(1)5,9,10(3)]
		<i>Aphis gossypii</i>	<b>P 19</b> [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2)10(3)]
		<i>Dysdercus cingulatus</i>	<b>R 12</b> [1,2,3,4(1)5(2)6,7(1)9,10(2)]
		<i>Empoasca</i> sp.	<b>P 7</b> [2(2)4(3)6,7(1)]

Major weed *Cenchrus echinatus***G 5** [2,3,4,5,10(1)]**LETTUCE***Lactuca sativa* COMPOSITAE

Origin: Middle East

## Major arthropod pests

leaf eating	Lep	<i>Agrotis ipsilon</i>	<b>P 11</b> [1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>Spodoptera litura</i>	<b>PP 22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
leaf eating	Dip	<i>Chromatomyia horticola</i>	<b>P 3</b> [6(3)]
sucking	Hem	<i>Aphis gossypii</i>	<b>P 19</b> [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2)10(3)]

**LEUCAENA***Leucaena leucocephala* MIMOSACEAE

Origin: South America

## Major arthropod pest

sucking	Hem	<i>Heteropsylla cubana</i>	<b>O 23</b> [1(1)2,3,4,5(3)6(2)7(1)8(3)9,10(2)]
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**LITCHI***Litchi chinensis* SAPINDACEAE

Origin: China

## Major arthropod pests

fruit borer	Lep	<i>Conopomorpha sinensis</i>	<b>R 1</b> [2(1)]
stem borer	Lep	<i>Cossus</i> sp.	<b>R 1</b> [2(1)]
sucking	Hem	<i>Leptoglossus gonagra</i>	<b>P 6</b> [2,6(1)8(3)10(2)]
		<i>Tessaratoma papillosa</i>	<b>R 2</b> [2(2)]
	Aca	<i>Aceria litchi</i>	<b>O 1</b> [2(1)]

Table 13 (continued)

**LONGAN***Euphorbia longana*

Origin: India

## Major arthropod pests

leaf eating	Lep	<i>Oxyodes scrobiculata</i>	<b>O</b> 1 [2(1)]
		<i>Statherotis discana</i>	<b>O</b> 1 [3(1)]
	Col	<i>Anomala pallida</i>	<b>R</b> 2 [6,7(1)]
		<i>Hypomeces squamosus</i>	<b>PP</b> 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
flower eating	Lep	<i>Conogethes punctiferalis</i>	<b>P</b> 13 [2,3(1)4,5(3)6(2)9(1)10(2)]
		<i>Eublemma abrupta</i>	<b>O</b> 2 [2,6(1)]
		<i>Eublemma brachygonia</i>	<b>O</b> 2 [2,6(1)]
		<i>Eublemma versicolor</i>	<b>O</b> 2 [2,6(1)]
fruit borer	Lep	<i>Conopomorpha sinensis</i>	<b>R</b> 1 [2(1)]
		<i>Othreis fullonia</i>	<b>P</b> 6 [2(1)5(2)6(1)8(2)]
stem borer	Lep	<i>Cossus</i> sp.	<b>R</b> 1 [2(1)]
sucking	Hem	<i>Lohita grandi</i>	<b>1</b> [2(1)]
		<i>Tessaratomata javanica</i>	<b>R</b> 1 [2(1)]

**LUFFA (Smooth)***Luffa cylindrica*

Origin: Asia

## Major arthropod pests

leaf eating	Col	<i>Aulacophora foveicollis</i>	<b>R</b> 4 [1,2(1)6(2)]
		<i>A. lewisi</i>	<b>1</b> [6(1)]
		<i>A. similis</i>	<b>P</b> 9 [2,3(1)5(3)6,8(1)9(2)]
fruit damaging	Dip	<i>Bactrocera cucurbitae</i>	<b>P</b> 25 [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]

**MAIZE (corn)***Zea mays* POACEAE

Origin: South America

## Major arthropod pests

leaf eating	Lep	<i>Agrotis ipsilon</i>	<b>P</b> 11 [1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>Agrotis segetum</i>	<b>P</b> 1 [1(1)]
		<i>Amsacta lactinea</i>	<b>P</b> 1 [5(1)]
		<i>Chrysodeixis eriosoma</i>	<b>P</b> 5 [4,5,6(1)10(2)]
		<i>Cnaphalocrocis medinalis</i>	<b>R</b> 16 [1(1)4(2)5(3)6(2)8,9(3)10(2)]
		<i>Mythimna</i> sp.	<b>2</b> [1,5(1)]
		<i>M. separata</i>	<b>R</b> 8 [1(2)2(1)3,4(2)9(1)]
		<i>Olene mendosa</i>	<b>P</b> 4 [4,6(1)10(2)]
		<i>Orgyia postica</i>	<b>P</b> 7 [2,3,5,6,9(1)10(2)]
		<i>Porthesia scintillans</i>	<b>P</b> 3 [2,5,6(1)]
		<i>Spodoptera</i> spp.	<b>1</b> [10(1)]
		<i>S. litura</i>	<b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
ear boring	Lep	<i>Helicoverpa armigera</i>	<b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
	Col	<i>Adoretus compressus</i>	<b>PP</b> 4 [5,6,7,9(1)]
		<i>Adoretus sinicus</i>	<b>PP</b> 4 [2(1)5(2)6(1)]
	Ort	<i>Cyrtacanthacris tartarica</i>	<b>P</b> 1 [5(1)]
		<i>Hieroglyphus banian</i>	<b>R</b> 4 [2,3,4,5(1)]

		<i>Nomadacris succinata</i>	P 6 [2,3,5(2)]
		<i>Valanga nigricornis</i>	P 4 [6(1)7(2)10(1)]
stem boring	Lep	<i>Chilo polychrysus</i>	R 7 [2,3(1)4(2)5,6,9(1)]
		<i>Chilo suppressalis</i>	R 13 [2,3,4(1)5(2)6(1)8(2)9(3)10(2)]
		<i>Ostrinia furnacalis</i>	P 17 [2(1)4(2)5,6,8(3)9(2)10(3)]
		<i>O. nubilalis</i>	O 4 [2(1)9(3)]
		<i>Sesamia inferens</i>	R 12 [1,2,4,5,6(1)8(2)9(3)10(2)]
	Dip	<i>Atherigona oryzae</i>	O 4 [5(1)9(2)10(1)]
seedling attacking			
			P 3 [2(1)5(2)]
			P 4 [2,5,6,7(1)]
			P 3 [10(3)]
			PP 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
			R 3 [2,6,7(1)]
			R 9 [2,3,4(1)5(2)6,7(1)10(2)]
			R 1 [3(1)]
			R 8 [2(1)5,6(2)8(1)10(2)]
			R 1 [2(1)]
seed attacking	Col	<i>Carpophilus hemipterus</i>	P 1 [6(1)]
	Col	<i>Anomala cupripes</i>	
		<i>Leucopholis irrorata</i>	
		<i>Hypomeces squamosus</i>	
		<i>Melanaphis sacchari</i>	
		<i>Rhopalosiphum maidis</i>	
sucking	Hem	<i>R. padi</i>	
		<i>Scotinophara coarctata</i>	
		<i>Frankliniella williamsi</i>	
		<i>Thrips hawaiiensis</i>	
Major weeds		<i>Ageratum conyzoides</i>	B 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Alternantherus sessilis</i>	B 8 [1,2,5,6(1)7,10(2)]
		<i>Amaranthus spinosus</i>	B 17 [1,2(3)3,4,5(1)6,7(2)9(1)10(2)]
		<i>A. viridus</i>	B 11 [1(1)2(3)3,4,5,7(1)10(3)]
		<i>Bidens pilosa</i>	B 10 [1(1)2(2)3,4,5(1)9,10(2)]
		<i>Boerhavia diffusa</i>	B 7 [1(1)2,7,10(2)]
		<i>Borreria laevis</i>	B 5 [6(1)7(2)9,10(1)]
		<i>Brachiaria distachya</i>	G 3 [6(1)10(2)]
		<i>B. reptans</i>	G 3 [2(2)5(1)]
		<i>Calopogonium mucunoides</i>	B 4 [6,7(1)10(2)]
		<i>Celosia argentea</i>	B 6 [1,9,10(2)]
		<i>Cenchrus echinatus</i>	G 5 [2,3,4,5,10(1)]
		<i>Chloris inflata</i>	G 9 [1(1)2(2)5(3)7(1)10(2)]
		<i>Chromolaena odorata</i>	B 18 [1,2,3,4,5(2)6(3)9(2)10(3)]
		<i>Cleome rutidosperma</i>	B 8 [2(1)6(2)7(3)10(2)]
		<i>C. viscosa</i>	B 6 [1,6(1)7,10(2)]
		<i>Commelina benghalensis</i>	B 10 [1(2)2(3)7,9,10(2)]
		<i>C. diffusa</i>	B 8 [2,7,9,10(2)]
		<i>Convolvulus arvensis</i>	B 2 [1(2)]
		<i>Cynodon dactylon</i>	G 18 [1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)]
		<i>Cyperus difformis</i>	S 18 [1,2,3(1)4(2)5,6(3)7(2)8,9(1)10(3)]
		<i>C. iria</i>	S 23 [1,2(2)3(3)4(2)5,6(3)7(1)8(3)9,10(2)]
			S 7 [5,6(2)7(1)10(2)]
		<i>C. kyllingia</i>	S 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
		<i>C. rotundus</i>	G 8 [1,2(2)7,9(1)10(2)]
		<i>Dactyloctenium aegyptium</i>	G 19 [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)]
		<i>Digitaria ciliaris</i>	G 5 [1(1)7,10(2)]
		<i>D. sanguinalis</i>	G 28 [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
		<i>Echinochloa colonum</i>	G 21 [2(3)3(1)4(2)5,6(3)7(2)8(1)9,10(3)]
		<i>E. crusgalli</i>	G 5 [4(2)8(1)10(2)]
		<i>E. glabrescens</i>	B 13 [1(1)2,5(2)6(3)7(2)9(1)10(2)]
		<i>Eclipta prostrata</i>	G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Eleusine indica</i>	B 10 [1(1)2(3)3,4,5(1)6(2)10(1)]
		<i>Euphorbia heterophylla</i>	B 10 [2(2)3,4,5,6(1)9,10(2)]
		<i>E. hirta</i>	B 5 [1,2,5(1)10(2)]
		<i>Heliotropium indicum</i>	G 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Imperata cylindrica</i>	G 4 [1(1)10(3)]
		<i>Ipomoea triloba</i>	

Table 13 (continued)

<i>Ischaemum indicum</i>	G	4	[5(3)10(1)]
<i>I. rugosum</i>	G	11	[1(1)6(3)7(1)8,9,10(2)]
<i>Leptochloa chinensis</i>	G	14	[1(3)2,5(2)6(3)9,10(2)]
<i>Ludwigia octovalvis</i>	B	7	[1,7(1)9(3)10(2)]
<i>Mimosa invisa</i>	B	18	[1,2,3(2)4(1)5,6,7,9(2)10(3)]
<i>M. pudica</i>	B	17	[1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]
<i>Panicum repens</i>	G	16	[1(1)2(2)5(3)6,7(2)8(1)9(3)10(2)]
<i>Paspalum conjugatum</i>	G	15	[5,6(3)7,8(2)9(3)10(2)]
<i>P. distichum</i>	G	6	[8(1)9(3)10(2)]
<i>Pennisetum polystachyon</i>	G	11	[2,3,4,5(1)6(3)9(2)10(2)]
<i>Phyllanthus fraternus</i>	B	4	[1,2(1)6(2)]
<i>Physalis angulata</i>	B	2	[1,2(1)]
<i>Portulaca oleracea</i>	B	10	[1(1)2(2)5,6,7,9(1)10(3)]
<i>Rottboellia cochinchinensis</i>	G	12	[1(1)2(2)3,5,6(1)9,10(3)]
<i>Striga asiatica</i>	B	6	[1,2,7(1)9(3)]
<i>Trianthemum portulacastrum</i>	B	8	[1(3)2(2)10(3)]

**MANGO***Mangifera indica* ANACARDIACEAE

Origin: Indo-Myanmar

## Major arthropod pests

leaf eating	Lep	<i>Archips micaceanus</i>	P	7	[2(1)3(2)5,6(1)7(2)]
		<i>Crematopsyche pendula</i>	O	2	[6,7(1)]
		<i>Euthalia aconthea</i>	O	2	[5,6(1)]
		<i>Orgyia postica</i>	P	7	[2,3,5,6,9(1)10(2)]
		<i>Parasa lepida</i>	PP	7	[2,5,6(1)9,10(2)]
		<i>Porthesia scintillans</i>	P	3	[2,5,6(1)]
		<i>Setora nitens</i>	PP	6	[2,3,5,6,7,8(1)]
		<i>Thosea spp.</i>	P	3	[7(1)10(2)]
		<i>Thosea sinensis</i>	P	5	[2,3,5(1)10(2)]
Col		<i>Anomala cupripes</i>	P	4	[2,5,6,7(1)]
		<i>Apoderus crenatus</i>	R	2	[2(2)]
		<i>A. notatus</i>	R	4	[2,5(2)]
		<i>Deporaus marginatus</i>	O	6	[1,2(2)6,7(1)]
		<i>Hypomeces squamosus</i>	P	14	[1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
		<i>Lepidiota stigma</i>	P	3	[2(1)9(2)]
		<i>Leucopholis rorida</i>	P	1	[9(1)]
	Ort	<i>Valanga nigricornis</i>	P	4	[1(6)7(2)10(1)]
leaf mining	Dip	<i>Erosomyia mangiferae</i>	O	1	[2(1)]
		<i>Raodiplosis orientalis</i>		2	[1,3(1)]
fruit damaging	Lep	<i>Eudocima salaminia</i>	P	2	[2(6)]
		<i>Noorda albizonalis</i>	O	3	[2(1)10(2)]
		<i>Orthoceris fullonia</i>	P	6	[2(1)5(2)6(1)8(2)]
	Dip	<i>Bactrocera dorsalis</i>	PP	26	[1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>Bactrocera latifrons</i>	R	6	[2(1)6,8(2)9(1)]
seed damaging	Col	<i>Sternochetus frigidus</i>	O	6	[2,6,7(1)8(3)]
		<i>S. goniocnemis</i>	O	1	[4(1)]
		<i>S. mangiferae</i>	O	2	[2,6(1)]
shoot and	Lep	<i>Chlumetia transversa</i>	R	8	[2,6(2)7(1)9(2)10(1)]
stem boring					
	Col	<i>Niphonclea albata</i>		2	[10(2)]
		<i>N. capito</i>		2	[10(2)]
		<i>Olenecamptus bilobus</i>		1	[5(1)]
		<i>Plocaderus fulvicornis</i>	R	1	[5(1)]
		<i>P. pedestris</i>	R	1	[1(1)]

		<i>Rhytidodera simulans</i>	<b>R</b> 5 [1,6,7,8,9(1)]
	Iso	<i>Coptotermes curvignathus</i>	<b>P</b> 4 [2(1)6(2)9(1)]
sucking	Hem	<i>Amritodus atkinsoni</i>	<b>O</b> 5 [1(2)2(3)]
		<i>Aulacaspis tuberculatus</i>	<b>O</b> 2 [5(2)]
		<i>Ceroplastes rubens</i>	<b>R</b> 3 [2,5,6(1)]
		<i>Idioscopus clypealis</i>	<b>P</b> 10 [1(1)2(3)4,7,9(1)10(3)]
		<i>I. nitidulus</i>	<b>P</b> 5 [6(2)10(3)]
		<i>I. niveosparsus</i>	<b>P</b> 17 [1(1)2,3(3)4(1)5(3)6(2)9(1)10(3)]
		<i>Mictis longicornis</i>	<b>P</b> 3 [6,7,8(1)]
	Thy	<i>Rastrococcus spinosus</i>	<b>P</b> 2 [2,6(1)]
	Aca	<i>Scirtothrips dorsalis</i>	<b>P</b> 5 [1,2(2)6(1)]
		<i>Aceria mangiferae</i>	<b>O</b> 2 [2(2)]
		<i>Oligonychus mangiferus</i>	<b>R</b> 4 [2(3)7(1)]
Major weeds		<i>Asystasia intrusa</i>	<b>B</b> 5 [6(3)7(2)]
		<i>Borreria latifolia</i>	<b>B</b> 7 [6(3)7,9(2)]
		<i>Eleusine indica</i>	<b>G</b> 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Imperata cylindrica</i>	<b>G</b> 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Mimosa invisa</i>	<b>B</b> 18 [1,2,3(2)4(1)5,6,7,9(2)10(3)]
		<i>M. pudica</i>	<b>B</b> 17 [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]

**MANGOSTEEN**

*Garcinia mangostana*  
Origin: Malaysia

## GUTTIFERAE

## Major arthropod pests

leaf feeding	Lep	<i>Hyposidra talaca</i>	<b>P</b> 2 [6,9(1)]
leaf mining	Lep	<i>Phyllocnistis citrella</i>	<b>R</b> 16 [1(1)2(3)3,4,5(2)6,7,8,9(1)10(2)]
sucking	Hem	<i>Toxoptera aurantii</i>	<b>P</b> 6 [2(1)6(2)7(1)10(2)]
Major weeds		<i>Asystasia intrusa</i>	<b>B</b> 5 [6(3)7(2)]
		<i>Borreria latifolia</i>	<b>B</b> 7 [6(3)7,9(2)]
		<i>Eleusine indica</i>	<b>G</b> 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Imperata cylindrica</i>	<b>G</b> 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Mimosa invisa</i>	<b>B</b> 18 [1,2,3(2)4(1)5,6,7,9(2)10(3)]
		<i>M. pudica</i>	<b>B</b> 17 [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]

**MARROW**

*Cucurbita pepo*  
Origin: Asia

see Pumpkin for pests

**MULBERRY**

*Morus* spp. MORACEAE  
Origin: China, Asia

## Major arthropod pests

leaf eating	Lep	<i>Archips micaceanus</i>	<b>P</b> 7 [2(1)3(2)5,6(1)7(2)]
		<i>Chrysodeixis eriosoma</i>	<b>P</b> 5 [4,5,6(1)10(2)]
		<i>Glyphodes pulverulentalis</i>	<b>R</b> 3 [5(2)6(1)]
		<i>Orgyia postica</i>	<b>P</b> 7 [1,2,5,6,9(1)10(2)]
		<i>Orgyia turbata</i>	<b>P</b> 2 [2,6(1)]

Table 13 (continued)

		<i>Parasa lepida</i>	<b>PP</b> <b>7</b> [2,5,6(1)9,10(2)]
	Col	<i>Phthorardria atrilineata</i>	<b>2</b> [5(2)]
stem boring	Col	<i>Hypomeces squamosus</i>	<b>PP</b> <b>14</b> [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
		<i>Apriona germari</i>	<b>R</b> <b>2</b> [3,5(1)]
		<i>Ceresium sinicum</i>	<b>R</b> <b>1</b> [5(1)]
		<i>Epepeotes uncinatus</i>	<b>O</b> <b>1</b> [1(1)]
		<i>Platymycteris sieversi</i>	<b>2</b> [5(2)]
sucking	Hem	<i>Bemisia</i> sp.	<b>1</b> [5(1)]
		<i>Parasaissetia nigra</i>	<b>P</b> <b>1</b> [6(1)]
		<i>Pseudaulacaspis pentagona</i>	<b>P</b> <b>1</b> [7(1)]

**NOSEBERRY***Achras zapota*

SAPOTACEAE

## Major arthropod pests

leaf eating	Lep	<i>Achaea serva</i>	<b>R</b> <b>1</b> [3(1)]
	Col	<i>Anomala pallida</i>	<b>P</b> <b>2</b> [6,7(1)]
		<i>Apogonia cribricollis</i>	<b>R</b> <b>1</b> [7(1)]
		<i>Hypomeces squamosus</i>	<b>PP</b> <b>14</b> [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
leaf mining	Lep	<i>Acrocercops symbolopis</i>	<b>O</b> <b>1</b> [2(1)]
fruit boring	Dip	<i>Bactrocera dorsalis</i>	<b>PP</b> <b>26</b> [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
sucking	Hem	<i>Coccus viridis</i>	<b>P</b> <b>7</b> [2,4(1)5(2)7(1)9(2)]

**NUTMEG***Myristica fragrans*

Origin: Moluccas

MYRISTICACEAE

## Major arthropod pests

fruit damaging	Col	<i>Araecerus fasciculatus</i>	<b>P</b> <b>6</b> [2,6,7,9(1)10(2)]
		<i>Oryzaephilus surinamensis</i>	<b>P</b> <b>2</b> [7,9(1)]
stem boring	Col	<i>Batocera hercules</i>	<b>1</b> [9(1)]
		<i>Xyleborus fornicatus</i>	<b>1</b> [6(1)]
Major weeds		<i>Asystasia intrusa</i>	<b>B</b> <b>5</b> [6(3)7(2)]
		<i>Axonopus compressus</i>	<b>G</b> <b>8</b> [2(1)6,7(3)9(1)]
		<i>Borreria latifolia</i>	<b>B</b> <b>7</b> [6(3)7,9(2)]
		<i>Ischaemum muticum</i>	<b>G</b> <b>5</b> [6,7(2)10(1)]
		<i>Ottochloa nodosa</i>	<b>G</b> <b>4</b> [1,6(2)]
		<i>Paspalum conjugatum</i>	<b>G</b> <b>15</b> [5,6(3)7,8(2)9(3)10(2)]

**OIL PALM***Elaeis guineensis* PALMAE

Origin: West Africa

## Major arthropod pests

leaf eating	Lep	<i>Amathusia phidippus</i>	<b>R</b> <b>3</b> [2,5,6(1)]
		<i>Artona catoxantha</i>	<b>R</b> <b>5</b> [2(1)6,7(2)]
		<i>Calliteara horsfieldii</i>	<b>P</b> <b>1</b> [6(1)]
		<i>Crematopsyche pendula</i>	<b>O</b> <b>2</b> [6,7(1)]
		<i>Darna diducta</i>	<b>P</b> <b>2</b> [1,6(1)]
		<i>Darna furva</i>	<b>P</b> <b>1</b> [2(1)]
		<i>D. trima</i>	<b>PP</b> <b>4</b> [2(2)6,9(1)]

		<i>Elymnias hypermestra</i>	<b>R</b> <b>1</b> [5(1)]
		<i>Hidari irrava</i>	<b>R</b> <b>3</b> [6(1)9(2)]
		<i>Mahasena corbetti</i>	<b>R</b> <b>5</b> [2,6(2)7(1)]
		<i>Metisa plana</i>	<b>O</b> <b>4</b> [6(2)7,9(1)]
		<i>Olene mendosa</i>	<b>P</b> <b>4</b> [4,6(1)10(2)]
		<i>Orgyia turbata</i>	<b>P</b> <b>2</b> [2,6(1)]
		<i>Setora nitens</i>	<b>PP</b> <b>6</b> [2,3,5,6,7,8(1)]
		<i>Spodoptera litura</i>	<b>PP</b> <b>22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Thosea sinensis</i>	<b>P</b> <b>5</b> [2,3,5(1)10(2)]
Col		<i>Anomala pallida</i>	<b>P</b> <b>2</b> [6,7(1)]
		<i>Apogonia cribicollis</i>	<b>R</b> <b>1</b> [7(1)]
		<i>Leucopholis rorida</i>	<b>P</b> <b>1</b> [9(1)]
		<i>Promecotheca cumingii</i>	<b>R</b> <b>3</b> [2,6,7(1)]
		<i>Xylotrupes gideon</i>	<b>PP</b> <b>4</b> [1,5(2)]
flower eating	Ort	<i>Valanga nigricornis</i>	<b>P</b> <b>4</b> [6(1)7(2)10(1)]
Lep		<i>Tirathaba mundella</i>	<b>R</b> <b>1</b> [6(1)]
Col		<i>Anomala pallida</i>	<b>P</b> <b>2</b> [6,7(1)]
shoot eating	Col	<i>Oryctes rhinoceros</i>	<b>O</b> <b>17</b> [2,3(2)4(1)5(3)6(2)7,8(1)9(3)10(2)]
stem boring	Iso	<i>Rhynchophorus schach</i>	<b>R</b> <b>4</b> [2,6(2)]
root damaging	Ort	<i>Coptotermes curvignathus</i>	<b>P</b> <b>4</b> [2(1)6(2)9(1)]
sucking	Hem	<i>Gryllotalpa africana</i>	<b>P</b> <b>5</b> [2,6,8(1)10(2)]
		<i>Aspidiottus destructor</i>	<b>P</b> <b>7</b> [2,4,5,6,7,9,10(1)]
		<i>Dysmicoccus brevipes</i>	<b>P</b> <b>10</b> [4(1)5(3)6,9,10(2)]
		<i>Ferrisia virgata</i>	<b>P</b> <b>4</b> [2,4(1)10(2)]
		<i>Hysteroneura setariae</i>	<b>R</b> <b>1</b> [7(1)]
		<i>Pinnaspis aspidistrae</i>	<b>P</b> <b>3</b> [6(1)10(2)]

**OKRA***Hibiscus esculentus* MALVACEAE

Origin: Tropical Africa

## Major arthropod pests

leaf eating	Lep	<i>Anomis flava</i>	<b>R</b> <b>9</b> [2,4(1)5(3)6,10(2)]
		<i>Archips micaceanus</i>	<b>P</b> <b>6</b> [2(1)3(2)5,6,7(1)]
		<i>Chrysodeixis eriosoma</i>	<b>P</b> <b>5</b> [4,5,6(1)10(2)]
		<i>Helicoverpa armigera</i>	<b>PP</b> <b>26</b> [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
		<i>Porthesia scintillans</i>	<b>P</b> <b>3</b> [2,5,6(1)]
		<i>Sylepte derogata</i>	<b>R</b> <b>6</b> [1,2,4,5,6,7(1)]
		<i>Xanthodes transversa</i>	<b>R</b> <b>1</b> [6(1)]
pod boring	Lep	<i>Earias vittella</i>	<b>R</b> <b>15</b> [1,2(2)3,4(1)5,6(2)7(1)8,9(2)]
	Col	<i>Epilachna vigintioctopunctata</i>	<b>R</b> <b>8</b> [1,2,5(2)6,9(1)]
root eating	Col	<i>Hypomeces squamosus</i>	<b>PP</b> <b>14</b> [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
sucking	Hem	<i>Leucopholis irrorata</i>	<b>P</b> <b>3</b> [10(3)]
		<i>Amrasca devastans</i>	<b>O</b> <b>15</b> [1(3)2(2)3(1)5,9,10(3)]
		<i>Aphis gossypii</i>	<b>P</b> <b>19</b> [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2)10(3)]
		<i>Dysdercus cingulatus</i>	<b>R</b> <b>12</b> [1,2,3,4(1)5(2)6,7(1)9,10(2)]
		<i>Ferrisia virgata</i>	<b>P</b> <b>4</b> [2,4(1)10(2)]
Thy		<i>Megalurothrips usistatus</i>	<b>2</b> [2,6(1)]
		<i>Thrips hawaiiensis</i>	<b>P</b> <b>1</b> [6(1)]

**ONION***Allium cepa* ALLIACEAE

Origin: West Africa

## Major arthropod pests

leaf eating	Lep	<i>Spodoptera exigua</i>	<b>PP</b> <b>5</b> [2(2)5(3)]
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Table 13 (continued)

bulb damaging	Dip	<i>S. litura</i>	PP 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
sucking	Thy	<i>Delia antiqua</i>	R 2 [10(2)]
	Aca	<i>Thrips tabaci</i>	P 9 [1(1)2,5(2)7(1)10(3)]
		<i>Aceria tulipae</i>	3 [2(1)10(2)]
<b>PASSIONFRUIT</b>			
<i>Passiflora edulis</i>		PASSIFLORACEAE	
Origin:	South America		
Major arthropod pests			
fruit damaging	Dip	<i>Batrocera dorsalis</i>	PP 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
stem boring	Lep	<i>Zeuzera coffeae</i>	P 8 [2,5,6,10(2)]
<b>PAPAYA</b>			
<i>Carica papaya</i>		CARICACEAE	
Origin:	Mexico, Costa Rica		
Major arthropod pests			
leaf eating	Lep	<i>Asota spp.</i>	1 [9(1)]
fruit damaging	Dip	<i>Bactrocera dorsalis</i>	PP 26 [1(2)2(3)2,3(2)5,6(3)7(2)8,9,10(3)]
		<i>Othreis fullonia</i>	P 6 [2(1)5(2)6(1)8(2)]
stem boring	Col	<i>Araecerus fasciculatus</i>	P 6 [2,6,7,9(1)10(2)]
sucking	Hem	<i>Aleurodinus dispersus</i>	P 22 [1(2)2(3)3(2)5,6(3)7(1)8(2)9(2)10(3)]
		<i>Aphis gossypii</i>	P 19 [1(1)2(3)3(1)4,5,6(2)7,8(1)9(2)10(3)]
		<i>Chrysomphalus aonidum</i>	P 3 [1,2,5(1)]
		<i>Phenacaspis papayae</i>	3 [2(2)9(1)]
Thy		<i>Thrips parvispinus</i>	P 4 [6(1)9(3)]
Aca		<i>Eutetranychus orientalis</i>	P 3 [2(3)]
		<i>Tetranychus cinnabarinus</i>	PP 2 [6,7(1)]
Major weeds			
		<i>Abutilon indicum</i>	B 3 [1(1)2(2)]
		<i>Ageratum conyzoides</i>	B 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Asystasia intrusa</i>	B 5 [6(3)7(2)]
		<i>Borreria latifolia</i>	B 7 [6(3)7,9(2)]
		<i>Croton hirtus</i>	B 3 [6(2)7(1)]
		<i>Eleusine indica</i>	G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Erechtites valerianifolia</i>	B 2 [6,7(1)]
		<i>Imperata cylindrica</i>	G 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Mikania micrantha</i>	B 11 [6,7(3)8,9(2)10(1)]
		<i>Mimosa pudica</i>	B 17 [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]
		<i>Panicum sarmentosum</i>	G 5 [6(3)7(2)]
		<i>Paspalum conjugatum</i>	G 15 [5,6(3)7,8(2)9(3)10(2)]
		<i>Passiflora foetida</i>	B 11 [1,2,3,5(1)6(3)7(1)8(2)10(1)]
		<i>Pennisetum polystachyon</i>	G 11 [2,3,4,5(1)6(3)9,10(2)]
<b>PEA</b>			
<i>Pisum sativum</i>		FABACEAE	
Origin:	USSR, Mediterranean		
Major arthropod pests			
leaf eating	Lep	<i>Chrysodeixis eriosoma</i>	P 5 [4,5,6(1)10(2)]

Table 13 (continued)

		<i>Euchrysops cneulus</i>	<b>R</b> 5 [6,7(1)10(3)]
		<i>Hedylepta indicata</i>	<b>R</b> 7 [2(1)3,5,10(2)]
		<i>Helicoverpa armigera</i>	<b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
		<i>Helicoverpa assulta</i>	<b>R</b> 7 [2,3(1)5(2)6(1)9(2)]
		<i>Porthesia scintillans</i>	<b>P</b> 3 [2,5,6(1)]
		<i>Spodoptera litura</i>	<b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Tiracola plagiata</i>	<b>P</b> 2 [2,6(1)]
leaf mining	Lep	<i>Aproarema modicella</i>	<b>R</b> 11 [1(2)2(1)3(2)4(3)6,9,10(1)]
	Dip	<i>Ophiomyia phaseoli</i>	<b>R</b> 14 [1,2(1)3,5,6(2)7(1)9(3)10(2)]
pod boring	Lep	<i>Etiella zinckenella</i>	<b>R</b> 8 [2(1)5(3)6(1)9(2)10(1)]
		<i>Lampides boeticus</i>	<b>R</b> 5 [2(1)5(2)6,7(1)]
seed boring	Col	<i>Callosobruchus</i> spp.	<b>4</b> [1,5(2)]
sucking	Hem	<i>Aphis craccivora</i>	<b>P</b> 15 [1,2,3,4(1)5(3)6,7(1)8,9,10(2)]
Major weeds		<i>Abutilon indicum</i>	<b>B</b> 3 [1(1)2(2)]
		<i>Digitaria ciliaris</i>	<b>G</b> 19 [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)]

**PEANUT, see GROUNDNUT****PEPPER**(a) *Piper betle*, (b) *P. nigrum* PIPERACEAE  
Origin: (a) Malaysia (b) India

## Major arthropod pests

stem boring	Col	<i>Lophobaris piperis</i>	<b>O</b> 7 [2(1)5,6,9(2)]
sucking	Hem	<i>Aleurodicus destructor</i>	<b>P</b> 5 [2,5,6,7,9(1)]
		<i>Dasyneurus piperis</i>	<b>O</b> 3 [6(1)9(2)]
		<i>Diconocoris hewitti</i>	<b>O</b> 2 [9(2)]
		<i>D. nepalensis</i>	<b>O</b> 3 [1(1)5(2)]
		<i>Ferrisia virgata</i>	<b>P</b> 4 [2,5(1)10(2)]
		<i>Pinnaspis aspidistrae</i>	<b>P</b> 3 [6(1)10(2)]
		<i>Planococcus citri</i>	<b>P</b> 7 [2(1)5(3)6,8,9(1)]
Major weeds		<i>Asystasia intrusa</i>	<b>B</b> 5 [6(3)7(2)]
		<i>Axonopus compressus</i>	<b>G</b> 8 [2(1)6,7(3)9(1)]
		<i>Borreria latifolia</i>	<b>B</b> 7 [6(3)7,9(2)]
		<i>Digitaria ciliaris</i>	<b>G</b> 20 [1,2(2)3(1)4(3)5(2)6(3)7(2)9(3)10(2)]
		<i>Eleusine indica</i>	<b>G</b> 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Erigeron sumatrensis</i>	<b>B</b> 2 [6(2)]
		<i>Paspalum conjugatum</i>	<b>G</b> 15 [5,6(3)7,8(2)9(3)10(2)]
		<i>Sporobolus indicus</i>	<b>G</b> 4 [6(3)10(1)]

**PIGEON PEA***Cajanus cajan* FABACEAE  
Origin: Africa

## Major insect pests

leaf eating	Lep	<i>Euchrysops cneulus</i>	<b>R</b> 5 [6,7(1)10(3)]
		<i>Helicoverpa armigera</i>	<b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
		<i>Lamprosema diemenalis</i>	<b>R</b> 4 [2,3,4,5(1)]
		<i>Olene mendoza</i>	<b>P</b> 4 [4,6(1)10(2)]
		<i>Porthesia scintillans</i>	<b>P</b> 3 [2,5,6(1)]

Table 13 (continued)

leaf mining	Dip	<i>Ophiomyia phaseoli</i>	<b>R 14</b> [1,2(1)3,5,6(2)7(1)9(3)10(2)]
pod boring	Lep	<i>Brachyacma palpigera</i>	<b>1</b> [6(1)]
stem boring	Lep	<i>Zeuzera coffeae</i>	<b>R 8</b> [2,5,6,10(2)]
sucking	Hem	<i>Aphis craccivora</i>	<b>P 15</b> [1,2,3,4(1)5(3)6,7(1)8,9,10(2)]
Major weeds		<i>Achyranthes aspera</i>	<b>B 2</b> [1,10(1)]
		<i>Ageratum conyzoides</i>	<b>B 17</b> [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Cassia tora</i>	<b>B 3</b> [1,2,10(1)]
		<i>Hedyotis corymbosa</i>	<b>B 6</b> [1(1)6,7(2)10(1)]
		<i>H. racemosa</i>	<b>B 2</b> [1(2)]
		<i>Spilanthes filicaulis</i>	<b>B 3</b> [1(3)]
<b>PINEAPPLE</b>			
<i>Ananas comosus</i>		BROMELIACEAE	
Origin:	South America		
Major arthropod pests			
sucking	Hem	<i>Aspidirotus destructor</i>	<b>P 7</b> [2,4,5,6,7,9,10(1)]
		<i>Dysmicoccus brevipes</i>	<b>P 10</b> [4(1)5(3)6,9,10(2)]
leaf eating	Ort	<i>Valanga nigricornis</i>	<b>P 4</b> [6(1)7(2)10(1)]
Major weeds		<i>Asystasia gangetica</i>	<b>B</b> [6,7(3)]
		<i>Asystasia intrusa</i>	<b>B 5</b> [6(3)7(2)]
		<i>Bidens pilosa</i>	<b>B 10</b> [1(1)2(2)3,4,5(1)9,10(2)]
		<i>Borreria latifolia</i>	<b>B 7</b> [6(3)7,9(2)]
		<i>Cleome rutidosperma</i>	<b>B 8</b> [2(1)6(2)7(3)10(2)]
		<i>Cynodon dactylon</i>	<b>G 18</b> [1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)]
		<i>Cyperus haspan</i>	<b>S 2</b> [6,7(1)]
		<i>Cyperus rotundus</i>	<b>S 27</b> [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
		<i>Digitaria ciliaris</i>	<b>G 19</b> [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)]
		<i>Eleusine indica</i>	<b>G 24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Hemarthria compressa</i>	<b>B 1</b> [5(1)]
		<i>Imperata cylindrica</i>	<b>G 26</b> [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Leptochloa chinensis</i>	<b>G 14</b> [1(3)2,5(2)6(3)9,10(2)]
		<i>Melastoma malabathricum</i>	<b>B 13</b> [2,3,5(1)6(3)7(2)8(3)9,10(1)]
		<i>Mentha arvensis</i>	<b>B 3</b> [1(2)5(2)6(3)9(1)]
		<i>Mimosa pudica</i>	<b>B 17</b> [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)]
		<i>Nephrolepis biserrata</i>	<b>F 10</b> [6(2)7,8(3)10(2)]
		<i>Panicum bisulcatum</i>	<b>G 3</b> [5(3)]
		<i>Paspalum conjugatum</i>	<b>G 15</b> [5,6(3)7,8(2)9(3)10(2)]
		<i>Stenochlaena palustris</i>	<b>F 7</b> [6,7(2)8(3)]
<b>POTATO (see also SOLANACEAE)</b>			
<i>Solanum tuberosum</i>		SOLANACEAE	
Origin:	South America		
Major arthropod pests			
leaf eating	Lep	<i>Agrotis ipsilon</i>	<b>P 11</b> [1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>Helicoverpa armigera</i>	<b>PP 26</b> [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
		<i>Spodoptera litura</i>	<b>P 22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
tuber boring	Lep	<i>Phthorimaea operculella</i>	<b>R 7</b> [1(2)2(1)5(3)9(1)]
	Col	<i>Anomala cupripes</i>	<b>P 4</b> [2,5,6,7(1)]
root eating	Ort	<i>Gryllotalpa africana</i>	<b>P 5</b> [2,6,8(1)10(2)]
sucking	Hem	<i>Aphis gossypii</i>	<b>P 19</b> [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2) 10(3)]

Table 13 (continued)

Thy	<i>Myzus persicae</i>	P 12	[2,3(1)5(3)6(2)7(1)9,10(2)]
	<i>Thrips palmi</i>	P 12	[1(1)2(2)6(3)7,8,9(1)10(3)]
	<i>T. tabaci</i>	PP 9	[1(1)2,5(2)7(1)10(3)]

**PUMPKIN**

*Cucurbita maxima* CUCURBITACEAE  
Origin: South America

## Major arthropod pests

leaf eating	Lep	<i>Adoxophyes privatana</i>	P 1 [7(1)]
		<i>Chrysodeixis eriosoma</i>	P 5 [4,5,6(1)10(2)]
		<i>Diaphania indica</i>	R 7 [2,4(1)5(2)6,7,8(1)]
	Col	<i>Aulacophora flavomarginata</i>	O 3 [6(2)8(1)]
		<i>A. foveicollis</i>	R 4 [1,2(1)6(2)]
		<i>A. lewisi</i>	1 [6(1)]
		<i>A. similis</i>	P 9 [2,3(1)5(3)6,8(1)9(2)]
fruit damaging	Dip	<i>Bactrocera cucurbitae</i>	P 25 [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
sucking	Hem	<i>Leptoglossus gonagra</i>	P 6 [2,6(1)8,10(2)]

**QUININE**

*Cinchona* spp. RUBIACEAE  
Origin: Peru

## Major arthropod pests

leaf eating	Lep	<i>Attacus atlas</i>	P 5 [2,5,6,7,9(1)]
		<i>Hyposidra talaca</i>	P 2 [6,9(1)]
		<i>Metanastria hyrtaca</i>	R 1 [2(1)]
		<i>Setora nitens</i>	PP 6 [2,3,5,6,7,8(1)]
		<i>Thosea sinensis</i>	P 5 [2,3,5(1)10(2)]
stem boring	Lep	<i>Zeuzera coffeae</i>	R 8 [2,5,6,10(2)]
sucking	Hem	<i>Coccus viridis</i>	P 7 [2,4(1)5(2)7(1)9(2)]

**RAMBUTAN**

*Nephelium lappaceum* SAPINDACEAE  
Origin: Malaysia

## Major arthropod pests

leaf eating	Lep	<i>Adoxophyes privatana</i>	P 1 [7(1)]
		<i>Archips machlopis</i>	R 1 [6(1)]
		<i>Archips micaceanus</i>	P 6 [2(1)3(2)5,6,7(1)]
		<i>Attacus atlas</i>	P 5 [2,5,6,7,9(1)]
		<i>Homona coffearia</i>	P 3 [5,6,9(1)]
		<i>Hyperaeschrella insulicola</i>	R 1 [2(1)]
		<i>Hyposidra talaca</i>	P 2 [6,9(1)]
		<i>Oxyodes scrobiculata</i>	1 [2(1)]
		<i>Parasa lepida</i>	PP 7 [2,5,6(1)9,10(2)]
		<i>Porthesia scintillans</i>	P 3 [2,5,6(1)]
		<i>Setora nitens</i>	PP 6 [2,3,5,6,7,8(1)]
Col		<i>Anomala antiqua</i>	P 5 [1(3)2,9(1)]
		<i>Anomala cupripes</i>	P 4 [2,5,6,7(1)]
		<i>Anomala pallida</i>	P 2 [6,7(1)]
		<i>Hypomeces squamosos</i>	PP 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]

Table 13 (continued)

flower feeding	Lep	<i>Eublemma abrupta</i>	O 2 [2,6(1)]
		<i>E. brachygonia</i>	O 2 [2,6(1)]
		<i>E. versicolor</i>	O 2 [2,6(1)]
		<i>Rapala phretima</i>	P 1 [6(1)]
		<i>Tirathaba rufivena</i>	R 2 [2,6(1)]
fruit boring	Lep	<i>Conogethes punctiferalis</i>	P 13 [2,3(1)4,5(3)6(2)9(1)10(2)]
		<i>Conopomorpha cramerella</i>	R 7 [2(1)6(3)9(1)10(2)]
		<i>Othreis fullonia</i>	P 6 [2(1)5(2)6(1)8(2)]
		<i>Tirathaba mundella</i>	R 1 [6(1)]
sucking	Dip	<i>Bactrocera dorsalis</i>	PP 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
	Hem	<i>Cataenococcus hispidus</i>	P 2 [2,6(1)]
		<i>Planococcus citri</i>	P 7 [2(1)5(3)6,8,9(1)]
	Aca	<i>Eutetranychus orientalis</i>	P 1 [2(1)]

**RAMIE***Boehmeria nivea* URTICACEAE

Origin: eastern Asia

## Major arthropod pests

leaf eating	Lep	<i>Acraea issoria</i>	R 1 [5(1)]
		<i>Lamprosema diemenalis</i>	R 4 [2,3,6,7(1)]
		<i>Olene mendosa</i>	P 4 [4,6(1)10(2)]
		<i>Vanessa indica</i>	R 1 [5(1)]
sucking	Ort	<i>Valanga nigricornis</i>	P 4 [6(1)7(2)10(1)]
	Hem	<i>Icerya seychellarum</i>	P 1 [2(1)]

**RICE***Oryza sativa* POACEAE

Origin: Asia, Africa

## Major arthropod pests

leaf eating	Lep	<i>Cnaphalocrosis medinalis</i>	R 16 [1(1)4(2)5(3)6(2)8,9(3)10(2)]
		<i>Mythimna separata</i>	R 8 [1(2)2(1)3,4(2)9(1)]
		<i>Naranga aenescens</i>	R 3 [5(1)10(2)]
		<i>Paraponyx stagnalis</i>	O 12 [1,4(1)5(2)8,9(3)10(2)]
		<i>Parnara guttatus</i>	R 3 [1(2)5(1)]
		<i>Spodoptera exempta</i>	2 [10(2)]
		<i>Spodoptera exigua</i>	PP 5 [2(2)5(3)]
		<i>Spodoptera litura</i>	PP 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>S. mauritia</i>	11 [1,2,4(1)5,6(2)7(1)9(3)]
	Col	<i>Hypomeces squamosus</i>	PP 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
	Ort	<i>Nomadacris succinata</i>	P 5 [2,3(2)5(1)]
		<i>Oxya sp.</i>	
leaf mining	Col	<i>Dicladispa armigera</i>	R 2 [1,5(1)]
	Dip	<i>Hydrellia sp.</i>	2 [5(2)]
		<i>H. philippina</i>	7 [4,5,6(1)8,10(2)]
stem boring	Lep	<i>Chilo auricilius</i>	O 3 [5(2)7(1)]
		<i>C. polychrysus</i>	R 7 [2,3(1)4(2)5,6,9(1)]
		<i>C. suppressalis</i>	R 13 [2,3,4(1)5(2)6(1)8(2)9(3)10(2)]
		<i>Scirpophaga incertulas</i>	O 16 [1(2)2(1)4(2)5(3)6(1)8(2)9(3)10(2)]
		<i>S. innotata</i>	O 4 [5(1)9(3)]
		<i>S. nivella</i>	O 4 [2,5(1)10(2)]
		<i>Sesamia inferens</i>	R 12 [1,2,4,5,6(1)8(2)9(3)10(2)]
gall midge	Dip	<i>Orseolia oryzae</i>	R 12 [1(2)2,3(1)4(3)5(2)9(3)]

Table 13 (continued)

root eating	Ort	<i>Gryllotalpa africana</i>	<b>P</b> <b>5</b> [2,6,8(1)10(2)]
sucking	Hem	<i>Gryllotalpa orientalis</i>	<b>P</b> <b>2</b> [1,5(1)]
		<i>Hysteroneura setariae</i>	<b>R</b> <b>1</b> [7(1)]
		<i>Leptocoris acuta</i>	<b>P</b> <b>11</b> [2,4(1)5,6(2)9(3)10(2)]
		<i>L. oratorius</i>	<b>P</b> <b>9</b> [1(2)2,5,6(1)9(3)9(1)]
		<i>Nephrotettix</i> spp.	<b>1</b> [2(1)]
		<i>N. nigropictus</i>	<b>R</b> <b>9</b> [2(1)4(2)5,6,7(1)9(3)]
		<i>N. virescens</i>	<b>R</b> <b>11</b> [1,2,5(1)6,9(3)10(2)]
		<i>Nezara viridula</i>	<b>PP</b> <b>10</b> [1(2)2,3,4(1)5(2)6,7,9(1)]
		<i>Nilaparvata lugens</i>	<b>R</b> <b>21</b> [2(3)3(2)4,5,6(3)7,8(1)9(3)10(2)]
		<i>Recilia dorsalis</i>	<b>R</b> <b>3</b> [2,5,9(1)]
		<i>Scotinophara</i> sp.	<b>1</b> [5(1)]
		<i>S. cinerea</i>	<b>R</b> <b>3</b> [9(3)]
		<i>S. coarctata</i>	<b>R</b> <b>8</b> [2(1)5,6(2)8(1)10(2)]
		<i>Sogatella furcifera</i>	<b>O</b> <b>13</b> [1(2)2(1)5,6(2)8(1)9(3)10(2)]
	Thy	<i>Stenchaetothrips biformis</i>	<b>O</b> <b>3</b> [1(1)5(2)]
	Aca	<i>Tetranychus urticae</i>	<b>PP</b> <b>11</b> [2(1)5,6(2)7(1)9(3)10(2)]

Major weeds [Where nominated D=direct seeding, T=transplanted, U=upland or dryland]

D.T.	<i>Alternanthera philoxeroides</i>	<b>B</b> <b>2</b> [2,5(1)]
U.	<i>Azolla pinnata</i>	<b>F</b> <b>7</b> [2,3,4,5(1)6(2)10(1)]
U.	<i>Borreria laevis</i>	<b>B</b> <b>5</b> [6(1)7(2)9,10(1)]
U.	<i>B. latifolia</i>	<b>B</b> <b>7</b> [6(3)7,9(2)]
U.	<i>Botriochloa pertusa</i>	<b>G</b> <b>1</b> [1(1)]
T.	<i>Brachiaria mutica</i>	<b>G</b> <b>6</b> [6(2)7,9(1)10(2)]
	<i>Chara zeylanica</i>	<b>A</b> <b>5</b> [2,3,4,5,9(1)]
	<i>Commelina diffusa</i>	<b>B</b> <b>8</b> [2,7,9,10(2)]
D.T.	<i>Cyperus difformis</i>	<b>S</b> <b>18</b> [1,2,3(1)4(2)5,6(3)7(2)8,9(1)10(3)]
U.	<i>C. digitatus</i>	<b>S</b> <b>4</b> [6(2)7,10(1)]
D.T.	<i>C. iria</i>	<b>S</b> <b>23</b> [1,2(2)3(3)4(2)5,6(3)7(1)8(3),9,10(2)]
	<i>C. haspan</i>	<b>S</b> <b>2</b> [6,7(1)]
	<i>C. kyllingia</i>	<b>S</b> <b>7</b> [5,6(2)7(1)10(2)]
	<i>C. odoratus</i>	<b>S</b> <b>2</b> [6(2)]
T.	<i>C. pilosus</i>	<b>S</b> <b>3</b> [6(2)7(1)]
	<i>C. rotundus</i>	<b>S</b> <b>27</b> [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
U.	<i>Digitaria ciliaris</i>	<b>G</b> <b>19</b> [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)]
D.	<i>Echinochloa colonum</i>	<b>G</b> <b>28</b> [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
D.	<i>E. crusgalli</i>	<b>G</b> <b>21</b> [2(3)3(1)4(2)5,6(3)7(2)8(1)9,10(3)]
T.U.	<i>Eclipta prostrata</i>	<b>B</b> <b>13</b> [1(1)2,5(2)6(3)7(2)9(1)10(2)]
	<i>Eleocharis dulcis</i>	<b>S</b> <b>3</b> [2,5,6(1)]
T.	<i>E. variegata</i>	<b>S</b> <b>2</b> [6(2)]
	<i>Eleusine coracana</i>	<b>G</b> <b>2</b> [2,5(1)]
U.	<i>E. indica</i>	<b>G</b> <b>24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
	<i>Eragrostis japonica</i>	<b>G</b> <b>1</b> [5(1)]
U.	<i>E. unioloides</i>	<b>G</b> <b>3</b> [1(1)6(2)]
U.	<i>Fimbristylis globulosa</i>	<b>S</b> <b>4</b> [6,7(2)]
D.T.	<i>F. miliacea</i>	<b>S</b> <b>23</b> [1(3)2,3(1)4(3)5(2)6(3)7(2)8,9(3),10(2)]
U.	<i>Fuerina umbellata</i>	<b>S</b> <b>2</b> [6(2)]
U.	<i>Hedyotis racemosa</i>	<b>B</b> <b>2</b> [1(2)]
U.	<i>Hydrolea zeylanica</i>	<b>B</b> <b>1</b> [1(1)]
T.	<i>Hymenachne actigluma</i>	<b>G</b> <b>5</b> [6,8(2)10(1)]
T.	<i>Ischaemea globosa</i>	<b>G</b> <b>3</b> [6(2)7(1)]
D.U.	<i>Ischaemum rugosum</i>	<b>G</b> <b>11</b> [1(1)6(3)7(1)8,9,10(2)]
D.T.	<i>Leersia hexandra</i>	<b>G</b> <b>9</b> [2,3,4,5(1)6(2)7,9,10(1)]
D.T.	<i>Lemna purpusilla</i>	<b>B</b> <b>7</b> [2,3,4,5(1)6(2)8(1)]
D.	<i>Leptochloa chinensis</i>	<b>G</b> <b>14</b> [1(3)2,5(2)6(3)9,10(2)]

Table 13 (continued)

U.	<i>Leucas cephalotes</i>	<b>B</b> <b>3</b> [1(3)]
D.T.	<i>Limnocharis flava</i>	<b>B</b> <b>5</b> [2(1)6(2)7,8(1)]
D.T.	<i>Ludwigia adscendens</i>	<b>B</b> <b>7</b> [1,2(1)6(2)9(1)10(2)]
D.T.	<i>L. hyssopifolia</i>	<b>B</b> <b>8</b> [1(3)2,6(2)10(1)]
D.T.	<i>Marsilea minuta</i>	<b>B</b> <b>12</b> [1,2,3,4,5(1)6(3)9,10(2)]
	<i>M. quadrifolia</i>	<b>B</b> <b>4</b> [5(3)10(1)]
T.U.	<i>Melochia corchorifolia</i>	<b>B</b> <b>4</b> [1(1)6(2)10(1)]
D.T.	<i>Monochoria vaginalis</i>	<b>B</b> <b>26</b> [1,2(2)3,4(3)5(2)6(3)7(2)8,9,10(3)]
T.	<i>Murdannia nudiflora</i>	<b>B</b> <b>5</b> [1,6,9(1)10(2)]
T.	<i>Najas graminea</i>	<b>B</b> <b>5</b> [2,3(1)6(2)10(1)]
T.	<i>Nymphaea lotus</i>	<b>B</b> <b>7</b> [2,3,5(1)6(2)7,8(1)]
	<i>Panicum cambogiense</i>	<b>G</b> <b>1</b> [2(1)]
U.	<i>Paspalum scrobiculatum</i>	<b>G</b> <b>7</b> [6,7,8(2)10(1)]
T.	<i>P. vaginatum</i>	<b>G</b> <b>3</b> [5(1)6(2)]
	<i>Pentapetes phoenicia</i>	<b>B</b> <b>1</b> [2(1)]
T.	<i>Phyllanthus fraternus</i>	<b>B</b> <b>4</b> [1,2(1)6(2)]
T.	<i>Rotala indica</i>	<b>B</b> <b>5</b> [5,6(2)10(1)]
D.T.	<i>Sagittaria guayanensis</i>	<b>B</b> <b>4</b> [6(3)7(1)]
	<i>S. trifolia</i>	<b>B</b> <b>2</b> [5,10(1)]
T.	<i>Salvinia molesta</i>	<b>F</b> <b>7</b> [6(3)7,9(1)10(2)]
D.T.	<i>Scirpus grossus</i>	<b>S</b> <b>7</b> [1(2)5(1)6(3)10(1)]
D.T.	<i>S. juncoides</i>	<b>S</b> <b>5</b> [1,6(2)9(1)]
T.	<i>S. supinus</i>	<b>S</b> <b>5</b> [6,8(2)10(1)]
D.T.	<i>Sphenoclea zeylanica</i>	<b>B</b> <b>14</b> [1(1)2(2)3(1)4(2)5(1)6(3)8,9(1)10(2)]
T.	<i>Utricularia aurea</i>	<b>B</b> <b>3</b> [1(1)6(2)]

**ROSE***Rosa* spp. ROSACEAE

Origin: Europe

## Major arthropod pests

leaf eating	Lep	<i>Achaea janata</i>	<b>P</b> <b>8</b> [1(1)2(2)3(1)4(2)5,6(1)]
		<i>Calliteara horsfieldii</i>	<b>P</b> <b>1</b> [6(1)]
		<i>Olene mendosa</i>	<b>P</b> <b>4</b> [4,6(1)10(2)]
		<i>Parasa lepida</i>	<b>PP</b> <b>7</b> [2,5,6(1)9,10(2)]
		<i>Setora nitens</i>	<b>PP</b> <b>6</b> [2,3,5,6,7,8(1)]
		<i>Spodoptera litura</i>	<b>PP</b> <b>22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
	Col	<i>Adoretus compressus</i>	<b>PP</b> <b>4</b> [5,6,7,9(1)]
		<i>Apogonia cribicollis</i>	<b>R</b> <b>1</b> [7(1)]
		<i>Aulacophora similis</i>	<b>P</b> <b>9</b> [2,3(1)5(3)6,8(1)9(2)]
stem boring	Lep	<i>Zeuzera coffeae</i>	<b>R</b> <b>8</b> [2,5,6,10(2)]
sucking	Hem	<i>Frankliniella occidentalis</i>	<b>P</b> <b>1</b> [6(1)]
		<i>Icerya purchasi</i>	<b>P</b> <b>4</b> [2,5,6,7(1)]
		<i>Mictis longicornis</i>	<b>P</b> <b>3</b> [6,7,9(1)]

**ROSELLE***Hibiscus sabdariffa* MALVACEAE

Origin: West Africa

## Major arthropod pests

leaf eating	Lep	<i>Helicoverpa armigera</i>	<b>PP</b> <b>26</b> [1,2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
	Col	<i>Anomala cupripes</i>	<b>P</b> <b>4</b> [2,5,6,7(1)]
		<i>Anomis flava</i>	<b>R</b> <b>9</b> [2,4(1)5(3)6,10(2)]
fruit boring	Dip	<i>Bactrocera cucurbitae</i>	<b>P</b> <b>25</b> [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]

sucking	Hem	<i>Dysdercus cingulatus</i> <i>Empoasca</i> sp.	<b>R 12</b> [1,2,3,4(1)5(2)6,7(1)9,10(2)] <b>P 7</b> [2(2)4(3)6,7(1)]
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**RUBBER**

*Hevea brasiliensis*  
Origin: Brazil

## EUPHORBIACEAE

## Major arthropod pests

leaf eating	Lep	<i>Apogonia cibricollis</i> <i>Attacus atlas</i> <i>Orgyia turbata</i> <i>Parasa lepida</i> <i>Porthesia scintillans</i> <i>Spodoptera litura</i> <i>Tiracola plagiata</i>  Col <i>Anomala cupripes</i> <i>A. pallida</i> <i>Epilachna indica</i> <i>Holotrichia bidentata</i> <i>Hypomeces squamosus</i> <i>Leucopholis rorida</i> <i>Lepidiota stigma</i>	<b>R 1</b> [7(1)] <b>P 5</b> [2,5,6,7,9(1)] <b>P 2</b> [2,6(1)] <b>PP 7</b> [2,5,6(1)9,10(2)] <b>P 3</b> [2,5,6(1)] <b>PP 22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)] <b>P 2</b> [2,6(1)] <b>P 4</b> [2,5,6,7(1)] <b>P 2</b> [6,7(1)] <b>R 1</b> [7(1)] <b>1</b> [6(1)] <b>PP 14</b> [1,2(1)3(2)4(1)5,6(2)6,7(1)8(3)9(1)] <b>P 1</b> [9(1)] <b>P 3</b> [2(1)9(2)]
stem boring	Iso	<i>Coptotermes curvignathus</i>	<b>P 4</b> [1(1)6(2)9(1)]
	Col	<i>Batocera rubus</i>	<b>P 2</b> [2,5(1)10(2)]
	Ort	<i>Xyleborus fornicatus</i> <i>Gryllotalpa africana</i> <i>Nomadacris succinata</i> <i>Valanga nigricornis</i>	<b>1</b> [6(1)] <b>P 5</b> [2,6,8(1)10(2)] <b>P 6</b> [2,3,5(2)] <b>P 4</b> [6(1)7(2)10(1)]
sucking	Hem	<i>Aspidiotus destructor</i> <i>Ferrisia virgata</i> <i>Parasaissetia nigra</i> <i>Pinnaspis aspidistrae</i> <i>Heliothrips haemorrhoidalis</i>	<b>P 7</b> [2,4,5,6,7,9,10(1)] <b>P 4</b> [2,4(1)10(2)] <b>P 1</b> [6(1)] <b>P 3</b> [6(1)10(2)] <b>P 2</b> [2,4(1)]
	Aca	<i>Polyphagotarsonemus latus</i>	<b>P 6</b> [1,2,6(1)7(2)9(1)]
Major weeds		<i>Asystasia gangetica</i> <i>Axonopus compressus</i> <i>Chromolaena odorata</i> <i>Digitaria ciliaris</i> <i>Eleusine indica</i> <i>Imperata cylindrica</i> <i>Melastoma malabathricum</i> <i>Mimosa pudica</i> <i>Paspalum conjugatum</i>	<b>B 6</b> [6(3)7(2)] <b>B 8</b> [2(1)6,7(3)9(1)] <b>B 18</b> [1,2,3,4,5(2)6(3)9(2)10(3)] <b>G 19</b> [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)] <b>G 24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)] <b>G 26</b> [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)] <b>B 13</b> [2,3,5(1)6(3)7(2)8(3)9,10(1)] <b>B 17</b> [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)] <b>G 15</b> [5,6(3)7,8(2)9(3)10(2)]

**SESAME**

*Sesamum indicum*  
Origin: Africa

## PEDALIACEAE

## Major arthropod pests

leaf eating	Lep	<i>Acherontia lachesis</i> <i>A. styx</i> <i>Antigastra catalaunalis</i> <i>Aproaerema modicella</i>	<b>P 4</b> [2,3,4,5(1)] <b>R 3</b> [2,3,4(1)] <b>O 3</b> [2(1)9(2)] <b>R 11</b> [1(2)2(1)3(2)4(3)6,9,10(1)]
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Table 13 (continued)

sucking	Col Hem	<i>Hypomeces squamosus</i> <i>Eysacoris guttiger</i> <i>Nezara viridula</i> <i>Nysius</i> sp. <i>Orosius orientalis</i>	<b>PP</b> 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)] <b>O</b> 1 [1(1)] <b>PP</b> 10 [1(2)2,3,4(1)5(2)6,7,9(1)] <b>P</b> 1 [2(1)] <b>P</b> 2 [1(2)]
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**SNAKE GOURD***Trichosanthes cucumerina* CUCURBITACEAE

Origin: Asia

## Major arthropod pests

leaf eating	Lep	<i>Diaphania indica</i>	<b>R</b> 7 [2,4(1)5(2)6,7,8(1)]
	Col	<i>Aulacophora similis</i>	<b>P</b> 9 [2,3(1)5(3)6,8(1)9(2)]
fruit damaging	Dip	<i>Bactrocera cucurbitae</i>	<b>P</b> 25 [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
sucking	Hem	<i>Leptoglossus gonagra</i> <i>Megymentum brevicornis</i>	<b>P</b> 6 [2,6(1)8,10(2)] <b>P</b> 2 [5,6(1)]

**SOLANACEAE**

## Major arthropod pests

leaf eating	Lep	<i>Acherontia lachesis</i>	<b>P</b> 4 [2,3,4,5(1)]
		<i>A. styx</i>	<b>R</b> 3 [2,3,4(1)]
		<i>Agrotis epsilon</i>	<b>P</b> 11 [1,2,4,5(1)6(2)7(1)9,10(2)]
		<i>Chrysodeixis eriosoma</i>	<b>P</b> 5 [4,5,6(1)10(2)]
		<i>Heliothis</i> sp.	<b>3</b> [5(3)]
		<i>Helicoverpa armigera</i>	<b>PP</b> 26 [1,2(3)2(4,5,6(3)7(1)8(2)9,10(3)]
		<i>Leucinodes orbonalis</i>	<b>R</b> 15 [1(2)2,3(1)4(2)5(3)6(2)7,8(3)]
		<i>Spodoptera littura</i>	<b>P</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Tiracola plagiata</i>	<b>P</b> 2 [2,6(1)]
	Col	<i>Anomala cupripes</i>	<b>P</b> 4 [2,5,6,7(1)]
		<i>Epicauta waterhousei</i>	<b>R</b> 1 [2(1)]
		<i>Epilachna indica</i>	<b>R</b> 1 [7(1)]
		<i>E. vigintioctopunctata</i>	<b>R</b> 8 [1,2,5(2)6,9(1)]
fruit attacking	Dip	<i>Bactrocera cucurbitae</i>	<b>P</b> 25 [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
		<i>B. dorsalis</i>	<b>PP</b> 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>B. latifrons</i>	<b>R</b> 6 [2(1)6,8(2)9(1)]
tuber attacking	Lep	<i>Phthorimaea operculella</i>	<b>R</b> 7 [1(2)2(1)5(3)9(1)]
	Ort	<i>Gryllotalpa africana</i>	<b>P</b> 5 [2,6,8(1)10(2)]
sucking	Hem	<i>Acanthocoris scaber</i>	<b>2</b> [5(2)]
		<i>Aphis gossypii</i>	<b>P</b> 19 [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2)]
		<i>Bemisia tabaci</i>	<b>P</b> 10 [2(3)5,6(1)7(3)9(2)]
		<i>Empoasca flavesrens</i>	<b>P</b> 7 [1(1)5(3)6(1)9(2)]
		<i>Megymentum brevicornis</i>	<b>P</b> 2 [5,6(1)]
		<i>Myzus persicae</i>	<b>P</b> 12 [2,3(1)5(3)6(2)7(1)9,10(2)]
		<i>Nezara viridula</i>	<b>P</b> 10 [1,2,3,4(1)5(2)6,7,9(1)]
		<i>Parabemisia myricae</i>	<b>R</b> 1 [5(1)]
		<i>Pseudococcus</i> sp.	<b>3</b> [2(1)5(2)]
		<i>Stibaropus molginus</i>	<b>1</b> [2(1)]
		<i>Urentius hystricellus</i>	<b>2</b> [4(2)]
	Thy	<i>Scirtothrips dorsalis</i>	<b>P</b> 5 [1,2(2)6(1)]
		<i>Thrips flavus</i>	<b>1</b> [2(1)]
		<i>T. palmi</i>	<b>P</b> 12 [1(1)2(2)6(3)7,8,9(1)10(3)]
		<i>T. tabaci</i>	<b>PP</b> 9 [1(1)2,5(2)7(1)10(3)]
	Aca	<i>Polyphagotarsonemus latus</i>	<b>P</b> 6 [1,2,6(1)7(2)9(1)]
		<i>Tetranychus urticae</i>	<b>PP</b> 11 [2(1)5,6(2)7(1)9(3)10(2)]

**SORGHUM***Sorghum bicolor*

Origin: Africa

POACEAE

## Major arthropod pests

leaf eating	Lep	<i>Mythimna separata</i> <i>Spodoptera litura</i> <i>Stenachroia elongella</i>	<b>R</b> 8 [1(2)2(1)3,4(2)9(1)] <b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)] 2 [5(2)]
	Ort	<i>Nomadacris succinata</i>	<b>P</b> 6 [2,3,5(2)]
stem boring	Lep	<i>Chilo auricilius</i> <i>C. sacchariphagus</i> <i>Conogethes punctiferalis</i> <i>Ostrinia furnacalis</i>	<b>O</b> 3 [5(1)9(2)] <b>R</b> 10 [2,3,4(1)5(3)6(2)7,9(1)] <b>P</b> 10 [2,3(1)4(3)6(2)9(1)10(2)] <b>P</b> 17 [2(1)4(2)5,6,8(3)9(2)10(3)]
	Dip	<i>Sesamia inferens</i>	<b>R</b> 12 [1,2,4,5,6(1)8(2)9(3)10(2)]
seed boring	Col	<i>Atherigona soccata</i>	<b>O</b> 4 [2,5(2)]
sucking	Hem	<i>Carpophilus hemipterus</i> <i>Leptocoris acuta</i> <i>Melanaphis sacchari</i> <i>Nezara viridula</i> <i>Rhopalosiphum maidis</i>	<b>P</b> 3 [2(1)5(2)] <b>R</b> 11 [2,4(1)5,6(2)9(3)10(2)] <b>R</b> 3 [2,6,7(1)] <b>P</b> 10 [1(2)2,3,4(1)5(2)6,7,9(1)] <b>R</b> 9 [2,3,4(1)5(2)6,7(1)10(2)]
Major weeds		<i>Ageratum conyzoides</i> <i>Cardiospermum halicacabum</i> <i>Cyperus rotundus</i> <i>Digitaria sanguinalis</i> <i>Echinochloa colonum</i> <i>E. crusgalli</i> <i>Eclipta prostrata</i> <i>Eleusine indica</i> <i>Pennisetum</i> spp. <i>Portulaca oleracea</i> <i>Scoparia dulcis</i> <i>Spilanthes filicaulis</i>	<b>B</b> 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)] <b>B</b> 1 [1(1)] <b>S</b> 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)] <b>G</b> 5 [1(1),7,10(2)]] <b>G</b> 25 [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)] <b>G</b> 21 [2(3)3(1)4(2)5,6(3)7(2)8(1)9,10(3)] <b>B</b> 13 [1(1)2,5(2)6(3)7(2)9(1)10(2)] <b>G</b> 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)] <b>G</b> 11 [2,3,4,5,6(2)9(1)] <b>B</b> 10 [1(1)2(2)5,6,7,9(1)10(3)] <b>B</b> 3 [1,6,10(1)] <b>B</b> 3 [1(3)]

**SOYBEAN***Glycine max*

FABACEAE

Origin: southern China

## Major arthropod pests

leaf eating	Lep	<i>Agrotis ipsilon</i> <i>Aproaerema modicella</i> <i>Archips micacaenius</i> <i>Brachyacma palpigera</i> <i>Chrysodeixis eriosoma</i> <i>Hedylepta indicata</i> <i>Helicoverpa armigera</i> <i>Hyposidra talaca</i> <i>Lamprosema diemenalis</i> <i>Porthesia scintillans</i>	<b>P</b> 11 [1,2,4,5(1)6(2)7(1)9,10(2)] <b>R</b> 11 [1(2)2(1)3(2)4(3)6,9,10(1)] <b>P</b> 7 [2(1)3,5(2)6,7(1)] 1 [6(1)] <b>P</b> 5 [4,5,6(1)10(2)] R 7 [2(1)3,5,10(2)]
	Col	<i>Spodoptera litura</i> <i>Epicauta gorhami</i> <i>Epicauta maklini</i> <i>Epilachna vigintioctopunctata</i>	<b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)] <b>P</b> 2 [6,9(1)] <b>R</b> 4 [2,3,6,7(1)] <b>P</b> 3 [2,5,6(1)]
	Ort	<i>Hypomeces squamosus</i>	<b>P</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)] <b>P</b> 1 5(1)] <b>R</b> 1 [2(1)] <b>R</b> 8 [1,2,5(2)7,9(1)] <b>PP</b> 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)] <b>P</b> 1 [5(1)]

Table 13 (continued)

leaf mining	Dip	<i>Japanagromyza tristella</i> <i>Melanagromyza sojae</i> <i>Ophiomyia phaseoli</i>	<b>R 2</b> [5(2)] <b>R 5</b> [2(1)5(3)9(1)]
pod boring	Lep	<i>Epeorus cauella</i> <i>Etella zinckenella</i> <i>Maruca testulalis</i>	<b>R 14</b> [1,2(1)3,5,6(2)7(1)9(3)10(2)] <b>P 2</b> [6,7(1)]
	Col	<i>Aracerus fasciculatus</i>	<b>R 8</b> [2(1)5(3)6(1)9(2)10(1)]
stem boring	Col	<i>Platynycteris sieversi</i>	<b>R 17</b> [1,2,3(1)4,5(3)6(2)7(1)8(3)9,10(1)]
sucking	Hem	<i>Amrasca</i> sp. <i>Aphis craccivora</i> <i>A. glycines</i> <i>Empoasca flavesrens</i> <i>Nezara viridula</i> <i>Parabemisia myricae</i> <i>Piezodorus hybneri</i> <i>Caliothrips indicus</i> <i>Frankliniella</i> sp. <i>Tetranychus kanzawai</i>	<b>P 6</b> [2,6,7,9(1)10(2)] <b>2</b> [5(2)] <b>4</b> [2(1)9(3)] <b>P 15</b> [1,2,3,4(1)5(3)6,7(1)8,9,10(2)] <b>R 3</b> [2(1)5(2)] <b>P 7</b> [1(1)5(3)6(1)9(2)] <b>P 10</b> [1(2)2,3,4(1)5(2)6,7,9(1)] <b>R 1</b> [5(1)] <b>R 4</b> [2,4,5,10(1)] <b>1</b> [2(1)] <b>2</b> [2,5(1)] <b>P 1</b> [6(1)]
Major weeds		<i>Ageratum conyzoides</i> <i>Amaranthus spinosus</i> <i>Chloris inflata</i> <i>Commelina benghalensis</i> <i>Cynodon dactylon</i> <i>Cyperus rotundus</i> <i>Dactyloctenium aegyptium</i> <i>Digitaria ciliaris</i> <i>Echinochloa colonum</i> <i>E. crusgalli</i> <i>Eclipta prostrata</i> <i>Eleusine indica</i> <i>Euphorbia heterophylla</i> <i>Leptochloa chinensis</i> <i>Mimosa pudica</i> <i>Panicum repens</i> <i>Pennisetum</i> spp. <i>Physalis angulata</i> <i>Rotboellia cochinchinensis</i>	<b>B 17</b> [1,2(3)4,5(1)6,7(2)8,9(1)10(2)] <b>B 17</b> [1,2(3)3,4,5(1)6,7(2)9(1)10(2)] <b>G 9</b> [1(1)2(2)5(3)7,10(2)] <b>B 10</b> [1(2)2(3)7,9,10(2)] <b>G 18</b> [1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)] <b>S 27</b> [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)] <b>G 8</b> [1,2(2)7,9(1)10(2)] <b>G 19</b> [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)] <b>G 28</b> [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)] <b>G 21</b> [2(3)3(1)4(2)5,6(3)7(2)8(1)9,10(3)] <b>B 13</b> [1(1)2,5(2)6(3)7(2)9(1)10(2)] <b>G 24</b> [1,2,3,4(2)5,6,7(3)8(1)9,10(3)] <b>B 10</b> [10(1)2(3)3,4,5(1)6(2)10(1)] <b>G 14</b> [1(3)2,5(2)6(3)9,10(2)] <b>B 17</b> [1(3)2,5(1)6(2)7(3)8(2)9(3)10(2)] <b>G 16</b> [1(1)2(2)5(3)6,7(2)8(1)9(3)10(2)] <b>G 11</b> [2,3,4,5,6(2)9(1)] <b>B 2</b> [1,2(1)] <b>G 12</b> [1(1)2(2)3,5,6(1)9,10(3)]

SQUASH, see PUMPKIN for pests

STARFRUIT, see CARAMBOLA

**STAR GOOSEBERRY***Cicca acida* EUPHORBIACEAE

Major arthropod pest

sucking	Hem	<i>Aleurodicus destructor</i>	<b>P 5</b> [2,5,6,7,9(1)]
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**SUGARCANE***Saccharum officinarum* POACEAE

Origin: Papua New Guinea

Major arthropod pests

leaf eating	Lep	<i>Euchrysops cnejus</i>	<b>R 6</b> [6(2)7(1)10(3)]
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Table 13 (continued)

		<i>Mahasena corbetti</i>	<b>R</b> <b>5</b> [2,6(2)7(1)]
	Col	<i>Hypomeces squamosus</i>	<b>PP</b> <b>14</b> [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
	Ort	<i>Hieroglyphus banian</i>	<b>P</b> <b>4</b> [2,3,4,5(1)]
		<i>Nomadacris succinata</i>	<b>P</b> <b>6</b> [2,3,5(2)]
shoot boring	Lep	<i>Tetramoera schistaceana</i>	<b>O</b> <b>3</b> [5(2)7(1)]
stem boring	Lep	<i>Chilo infuscatellus</i>	<b>O</b> <b>8</b> [2,3(1)4(2)9(1)10(3)]
		<i>C. sacchariphagus</i>	<b>R</b> <b>10</b> [2,3,4(1)5(3)6(2)8,9(1)]
		<i>Phragmatcea castaneae</i>	<b>1</b> [6(1)]
		<i>Scirpophaga excerptalis</i>	<b>O</b> <b>3</b> [2(1)5(2)]
		<i>S. nivella</i>	<b>O</b> <b>4</b> [2(1)5(1)10(2)]
		<i>Sesamia inferens</i>	<b>R</b> <b>12</b> [1,2,4,5,6(1)8(2)9(3)10(2)]
	Col	<i>Spodoptera litura</i>	<b>PP</b> <b>22</b> [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Alissonotum impressicolle</i>	<b>O</b> <b>3</b> [2(1)5(2)]
		<i>Dorysthenes buquetii</i>	<b>1</b> [2(1)]
		<i>Holotrichia sinensis</i>	<b>3</b> [2(1)5(2)]
		<i>Lepidiota descendens</i>	<b>R</b> <b>1</b> [2(1)]
		<i>L. stigma</i>	<b>P</b> <b>3</b> [2(1)9(2)]
		<i>Sepiomus</i> sp.	<b>1</b> [2(1)]
root eating	Col	<i>Leucopholis irrorata</i>	<b>P</b> <b>3</b> [10(3)]
		<i>Xylotrupes gideon</i>	<b>4</b> [1,5(2)]
	Iso	<i>Coptotermes havilandi</i>	<b>P</b> <b>1</b> [7(1)]
		<i>Macrotermes</i> spp.	<b>P</b> <b>4</b> [1,5,6,7(1)]
sucking	Hem	<i>Aleurolobus barodensis</i>	<b>O</b> <b>1</b> [2(1)]
		<i>Aulacaspis tegalensis</i>	<b>R</b> <b>2</b> [2,9(1)]
		<i>Callitettix versicolor</i>	<b>1</b> [2(1)]
		<i>Ceratovacuna lanigera</i>	<b>R</b> <b>4</b> [2(1)5(2)6(1)]
		<i>Phaenacantha saccharicida</i>	<b>2</b> [2,6(1)]
		<i>Saccharicoccus sacchari</i>	<b>R</b> <b>5</b> [2,5,6,7,10(1)]
	Thy	<i>Frankliniella williamsi</i>	<b>R</b> <b>1</b> [2(1)]
Major weeds		<i>Ageratum conyzoides</i>	<b>B</b> <b>17</b> [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
		<i>Amaranthus spinosus</i>	<b>B</b> <b>17</b> [1,2(3)3,4,5(1)6,7(2)9(1)10(2)]
		<i>Bidens pilosa</i>	<b>B</b> <b>10</b> [1(1)2(2)3,4,5(1)9,10(2)]
		<i>Chloris inflata</i>	<b>G</b> <b>9</b> [1(1)2(2)5(3)7,10(2)]
		<i>Cynodon dactylon</i>	<b>G</b> <b>18</b> [1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)]
		<i>C. rotundus</i>	<b>S</b> <b>27</b> [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
		<i>Echinochloa colonum</i>	<b>G</b> <b>28</b> [1(2)2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
		<i>Euphorbia hirta</i>	<b>B</b> <b>10</b> [2(2)3,4,5,6(1)9,10(2)]
		<i>Portulaca oleracea</i>	<b>B</b> <b>9</b> [1(1)2(2)5,6,7,9(1)10(2)]
		<i>Rottboellia cochinchinensis</i>	<b>G</b> <b>12</b> [1(1)2(2)3,5,6(1)9,10(3)]

**SUNFLOWER***Helianthus annuus*

COMPOSITAE

Origin: Western USA

Major arthropod pest

leaf eating Lep *Archips micaceanus***P** **6** [2(1)3(2)5,6,7(1)]Major weed *Physalis angulata***B** **2** [1,2(1)]**SUN HEMP***Crotalaria juncea*

FABACEAE

Origin: India

Major arthropod pests

leaf eating Lep *Utetheisa pulchella***R** **2** [5(2)]

Table 13 (continued)

	Col	<i>Epicauta gorhami</i>	P 1 [5(1)]
		<i>Mylabris phalerata</i>	P 2 [2,5(1)]
pod boring	Lep	<i>Etiella zinckenella</i>	R 8 [2(1)5(3)6(1)9(2)10(1)]
		<i>Lampides boeticus</i>	R 5 [2(1)5(2)6,7(1)]

**SWEET POTATO***Ipomoea batatas* CONVOLVULACEAE

Origin: tropical America

Major arthropod pests

leaf eating	Lep	<i>Agrius convolvuli</i>	P 7 [2,4(1)5(2)6(1)9(2)]
		<i>Archips machlopis</i>	R 1 [6(1)]
		<i>Brachmia trianuella</i>	1 [5(1)]
		<i>Orgyia turbata</i>	P 2 [2,6(1)]
		<i>Spodoptera litura</i>	P 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
	Col	<i>Apogonia cribicollis</i>	R 1 [7(1)]
		<i>Aspidomorpha furcata</i>	R 2 [5,7(1)]
		<i>A. miliaris</i>	R 4 [2(1)5(2)9(1)]
		<i>Colaspisoma dauricum</i>	R 1 [5(1)]
		<i>Epilachna indica</i>	R 1 [7(1)]
		<i>Taiwania circumdata</i>	1 [5(1)]
stem boring	Lep	<i>Omphisa anastomosalis</i>	O 7 [2,3(1)4(2)5,6,7(1)]
root damaging	Col	<i>Leucopholis irrorata</i>	P 3 [10(3)]
tuber	Col	<i>Cylas formicarius</i>	R 22 [2(3)3(2)4(3)5,6(2)7(1)8,9,10(3)]
damaging		<i>Xylotrupes gideon</i>	4 [1,5(2)]
sucking	Aca	<i>Bedellia somulenta</i>	1 [2(1)]
		<i>Tetranychus hydrangeae</i>	1 [2(1)]
Major weeds		<i>Echinochloa colonum</i>	G 28 [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
		<i>Eleusine indica</i>	G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]

**TAMARIND***Tamarindus indica* CAESALPINACEAE

Origin: tropical Africa

Major arthropod pest

leaf eating	Lep	<i>Calliteara horsfieldii</i>	P 1 [6(1)]
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**TARO***Colocasia* spp. ARACEAE

Origin: Southeast Asia

Major arthropod pests

leaf eating	Lep	<i>Hippotion celerio</i>	R 3 [2(1)10(2)]
		<i>Spodoptera litura</i>	PP 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
sucking	Hem	<i>Aphis gossypii</i>	P 19 [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2) 10(3)]
		<i>Tarophagus colocasiae</i>	O 3 [10(3)]

**TEA**

*Camellia sinensis*  
Origin: China

## THEACEAE

## Major arthropod pests

leaf eating	Lep	<i>Adoxophyes privatana</i> <i>Amsacta lactinea</i> <i>Archips machlopis</i> <i>Euproctis pseudoconspersa</i> <i>Homona coffearia</i> <i>Hyposidra talaca</i> <i>Olene mendosa</i> <i>Parasa lepida</i> <i>Setora nitens</i>	P 1 [7(1)] P 1 [5(1)] R 1 [6(1)] R 1 [5(1)] P 3 [5,6,9(1)] P 2 [6,9(1)] P 4 [4,6(1)10(2)] PP 7 [2,5,6(1)9,10(2)] PP 6 [2,3,5,6,7,8(1)]
	Col	<i>Apogonia</i> sp. <i>Apogonia cribicollis</i>	2 [5(2)] R 1 [7(1)]
stem boring	Lep	<i>Xyleutes ceramicus</i> <i>Zeuzera coffeae</i>	1 [2(1)] R 8 [2,5,6,10(2)]
	Col	<i>Xyleborus fornicatus</i> <i>Xylosandrus compactus</i>	1 [6(1)] P 2 [5(2)]
root eating	Col	<i>Anomala pallida</i>	2 [6,7(1)]
	Iso	<i>Macrotermes</i> spp. <i>Microtermes pakistaniicus</i>	P 4 [1,5,6,7(1)] P 2 [6,7(1)]
sucking	Hem	<i>Empoasca flavescens</i> <i>Helopeltis bradyi</i> <i>H. theivora</i> <i>Lohita grandis</i> <i>Poecilocoris latus</i> <i>Pinnaspis aspidistrae</i> <i>Toxoptera aurantii</i>	P 7 [1(1)5(3)6(1)9(2)] R 1 [9(1)] R 9 [5(2)6(3)9,10(2)] 1 [2(1)] R 1 [5(1)] P 3 [6(1)10(2)] P 6 [1(1)6(2)7(1)10(2)]
	Thy	<i>Mycterothrips setiventris</i>	2 [5(2)]
		<i>Scirtothrips dorsalis</i>	P 5 [1,2(2)6(1)]
	Aca	<i>Oligonychus coffeae</i>	P 5 [2(2)5(3)]
Major weeds		<i>Ageratum conyzoides</i> <i>Asystasia intrusa</i> <i>Axonopus compressus</i> <i>Borreria latifolia</i> <i>Clidemia hirta</i> <i>Cynodon dactylon</i> <i>Cyperus rotundus</i> <i>Eleusine indica</i> <i>Imperata cylindrica</i> <i>Paspalum conjugatum</i> <i>Sporobolus indicus</i>	B 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)] B 5 [6(3)7(2)] G 6 [2,6(1)7(3)9(1)] B 7 [6(3)7,9(2)] B 5 [6,7(2)7(1)] G 18 [1,2(2)3,4(1)5(3)6,7(2)9(3)10(2)] S 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)] G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)] G 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)] G 15 [5,6(3)7,8(2)9(3)10(2)] S 3 [6(3)]

**TEAK**

*Tectona grandis*  
Origin: Myanmar

## VERBENACEAE

## Major arthropod pests

stem boring	Lep	<i>Dichocrocis megillalis</i> <i>Hyblaea puera</i> <i>Zeuzera coffeae</i>	O 1 [9(1)] R 7 [1,2,3(2)5(1)] R 8 [2,5,6,10(2)]
	Col	<i>Xyleutes ceramicus</i>	1 [2(1)]

Table 13 (continued)

**TOBACCO***Nicotiana tabacum*

SOLANACEAE

Origin: Central and South America

## Major arthropod pests

leaf eating	Lep	<i>Agrotis ipsilon</i> <i>Cnaphalocrocis medinalis</i> <i>Helicoverpa armigera</i> <i>H. assulta</i> <i>Lamprosema diemenalis</i> <i>Orgyia turbata</i> <i>Spodoptera litura</i>	<b>P</b> 11 [1,2,4,5(1)6(2)7(1)9,10(2)] <b>R</b> 16 [1(1)4(2)5(3)6(2)8,9(3)10(2)] <b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8,9,10(3)] <b>R</b> 7 [2,3(1)5(2)6(1)9(2)] <b>R</b> 4 [2,3,6,7(1)] <b>P</b> 2 [2,6(1)]
leaf mining	Lep	<i>Scrobipalpa heliopa</i>	<b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)] <b>5</b> [4(2)5,6,7(1)]
fruit boring	Lep	<i>Leucinodes orbonalis</i>	<b>R</b> 15 [1(2)2,3(1)4(2)5(3)6(2)7(1)8(3)]
root damaging	Col	<i>Hypomeces squamosus</i>	<b>PP</b> 14 [1,2(1)3(2)4(1)5,6(2)7(1)8(3)9(1)]
sucking	Hem	<i>Aphis gossypii</i>	<b>P</b> 19 [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2) 10(3)]
		<i>Bemisia tabaci</i>	<b>PP</b> 10 [2(3)5,6(1)7(3)9(2)]
		<i>Cyrtopeltis tenuis</i>	<b>O</b> 1 [5(1)]
		<i>Myzus persicae</i>	<b>P</b> 12 [2,3(1)5(3)6(2)7(1)9,10(2)]
		<i>Stibaropus molginus</i>	<b>1</b> [2(1)]
	Thy	<i>Thrips tabaci</i>	<b>PP</b> 9 [1(1)2,5(2)7(1)10(3)]
Major weeds		<i>Ageratum conyzoides</i> <i>Borreria latifolia</i> <i>Cleome rutidosperma</i> <i>Croton hirtus</i> <i>Echinochloa colonum</i> <i>Eclipta prostrata</i> <i>Hedyotis corymbosa</i> <i>Lindernia crustacea</i> <i>Ludwigia hyssopifolia</i> <i>Melochia corchorifolia</i> <i>Murdannia nudiflora</i> <i>Phyllanthus fraternus</i>	<b>B</b> 17 [1,2(3)3,4,5(1)6,7(2)8,9)1)10(2)] <b>B</b> 7 [6(3)7,9(2)] <b>B</b> 8 [2(1)6(2)7(3)10(2)] <b>B</b> 3 [6(2)7(1)] <b>G</b> 28 [1,2,3(3)4(2)5,6(3)7(2)8,9,10(3)] <b>B</b> 13 [1(1)2,5(2)6(3)7(2)9(1)10(2)] <b>B</b> 7 [1(1)6(3)7(2)10(1)] <b>B</b> 4 [6,7(2)] <b>B</b> 8 [1(3)2,6(2)10(1)] <b>B</b> 4 [1(1)6(2)10(1)] <b>B</b> 5 [1,6,9(1)10(2)] <b>B</b> 4 [1,2(1)6(2)]

**TOMATO (see also SOLANACEAE)***Lycopersicon esculentum*

SOLANACEAE

Origin: South America

## Major arthropod pests

leaf eating	Lep	<i>Acherontia lachesis</i> <i>Acherontia styx</i> <i>Agrotis ipsilon</i> <i>Chrysodeixis eriosoma</i>	<b>P</b> 4 [2,3,4,5(1)] <b>R</b> 3 [2,3,4(1)] <b>P</b> 11 [1,2,4,5(1)6(2)7(1)9,10(2)] <b>P</b> 5 [4,5,6(1)10(2)]
fruit boring	Lep	<i>Helicoverpa armigera</i>	<b>PP</b> 26 [1,2(3)3(2)4,5,6(3)7(1)8(2)9,10(3)]
	Dip	<i>Spodoptera litura</i>	<b>PP</b> 22 [1(3)2(2)3(1)4(2)5,6(3)7,8,9,10(2)]
		<i>Bactrocera cucurbitae</i>	<b>P</b> 25 [1(1)2(3)3(2)4,5,6(3)7(1)8,9,10(3)]
		<i>B. dorsalis</i>	<b>PP</b> 26 [1(2)2(3)3,4(2)5,6(3)7(2)8,9,10(3)]
		<i>B. latifrons</i>	<b>R</b> 6 [2(1)6,8(2)9(1)]
root damaging	Ort	<i>Gryllotalpa africana</i>	<b>P</b> 5 [2,6,8(1)10(2)]
sucking	Hem	<i>Aphis gossypii</i> <i>Bemisia tabaci</i> <i>Cyrtopeltis tenuis</i> <i>Myzus persicae</i> <i>Urentius hystricellus</i>	<b>PP</b> 19 [1(2)2(3)3(1)4,5,6(2)7,8(1)9(2)10(3)] <b>P</b> 10 [2(3)5,6(1)7(3)9(2)] <b>O</b> 1 [5(1)] <b>P</b> 12 [2,3(1)5(3)6(2)7(1)9,10(2)] <b>O</b> 2 [4(2)]
	Thy	<i>Thrips palmi</i>	<b>P</b> 12 [1(1)2(2)6(3)7,8,9(1)10(3)]
		<i>T. tabaci</i>	<b>PP</b> 9 [1(1)2,5(2)7(1)10(3)]

**VEGETABLES** (Malaysia)

Major weeds	<i>Ageratum conyzoides</i>	B 17 [1,2(3)3,4,5(1)6,7(2)8,9(1)10(2)]
	<i>Amaranthus lividus</i>	B 3 [6(3)]
	<i>A. spinosus</i>	B 17 [1,2(3)3,4,5(1)6,7(2)9(1)10(2)]
	<i>Asystasia intrusa</i>	B 5 [6(3)7(2)]
	<i>Borreria latifolia</i>	B 7 [6(3)7,9(2)]
	<i>Cleome rutidosperma</i>	B 8 [2(1)6(2)7(3)10(2)]
	<i>Croton hirtus</i>	B 3 [6(2)7(1)]
	<i>Cyperus iria</i>	S 23 [1,2(2)3(3)4(2)5,6(3)7(1)8(3)9, 10(2)]
	<i>C. kyllingia</i>	S 7 [5,6(2)7(1)10(2)]
	<i>C. rotundus</i>	S 27 [1,2(3)3,4(2)5(3)6(2)7,8,9,10(3)]
	<i>C. zollingeri</i>	S 4 [6(2)7,8(1)]
	<i>Digitaria ciliaris</i>	G 19 [1,2(2)3(1)4(3)5,6,7(2)9(3)10(2)]
	<i>Echinochloa colonum</i>	G 28 [1(2)2,3(3)4(2)5,6(3)7(2)8,9,10(3)]
	<i>Eleusine indica</i>	G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
	<i>Fimbristylis miliacea</i>	S 23 [1(3)2,3(1)4(3)5(2)6(3)7(2)9(3) 10(2)]
	<i>Imperata cylindrica</i>	G 26 [1,2(3)3,4(2)5,6,7(3)8(1)9,10(3)]
	<i>Ischaemum muticum</i>	G 5 [6,7(2)10(1)]
	<i>Mikania micrantha</i>	B 11 [6,7(3)8,9(2)10(1)]
	<i>Murdannia nudiflora</i>	B 5 [1,6,9(1)10(2)]
	<i>Oldenlandia corymbosa</i>	B 6 [1(1)6,7(2)10(1)]
	<i>Oxalis corymbosa</i>	B 5 [2(1)6,7(2)]
	<i>Paspalum conjugatum</i>	G 15 [5,6(3)7,8(2)9(3)10(2)]
	<i>Passiflora foetida</i>	B 11 [1,2,3,5(1)6(3)7(1)8(2)10(1)]

**WATERMELON***Citrullus lanatus* CUCURBITACEAE

Origin: tropical and subtropical Africa

## Major arthropod pests

leaf eating	Lep	<i>Diaphania indica</i>	R 7 [2,4(1)5(2)6,7,8(1)]
	Col	<i>Aulacophora foveicollis</i>	R 4 [1,2(1)6(2)]
		<i>A. frontalis</i>	R 4 [2,3,5,7(1)]
		<i>A. similis</i>	P 9 [[2,3(1)5(3)6,8(1)9(2)]
		<i>Epilachna indica</i>	R 1 [7(1)]
fruit damaging	Dip	<i>Bactrocera cucurbitae</i>	R 25 [1(1)2(3)392)4,5,6(3)7(1)8,9,10(3)]
		<i>B. tau</i>	3 [2,6,8(1)]
sucking	Thy	<i>Haplothrips floricolus</i>	R 2 [2(2)]
		<i>Thrips palmi</i>	P 12 [1(1)2(2)6(3)7,8,9(1)10(3)]
		<i>T. parvispinus</i>	P 4 [1(6)9(3)]
	Aca	<i>Tetranychus</i> sp.	P 8 [1(1)5(2)6,7,8(1)10(2)]
Major weeds		<i>Axonopus compressus</i>	B 6 [2,6(1)7(3)9(1)]
		<i>Borreria latifolia</i>	B 7 [6(3)7,9(2)]
		<i>Cleome rutidosperma</i>	B 8 [2(1)6(2)7(3)10(2)]
		<i>Eleusine indica</i>	G 24 [1,2,3,4(2)5,6,7(3)8(1)9,10(3)]
		<i>Erigeron sumatrensis</i>	B 2 [6(2)]
		<i>Paspalum conjugatum</i>	G 15 [5,6(3)7,8(2)9(3)10(2)]
		<i>P. scrobiculatum</i>	G 7 [6,7,8(2)10(1)]

**WHEAT***Triticum aestivum* POACEAE

Origin: southeast Asia

Major weed	<i>Convolvulus arvensis</i>	B 2 [1(2)]
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**Table 14****Southeast Asian Crop Statistics**

Two parameters that influence the importance of a pest to a crop in a particular country are the area under that crop and, particularly, the yield produced. The latest statistics available (as of April 1991) for Southeast Asia as a whole for a number of the more important crops affected by the major pests reported, are shown in table 14. The figures are drawn from the 1990 FAO Production Yearbook (FAO 1991). They refer to produce that moves through the market place and do not take into account the quite large amounts of some crops (eg. vegetables) that are produced for home consumption.

Gaps indicate that the crop is not grown commercially in a country or that the area grown is less than 1,000 hectares and/or the production is less than 1,000 metric tonnes. The figures uncover a weakness in simply adding up the pluses assigned to each pest. Thus, for soybeans in 1990, Indonesia produced 1,427,000, Thailand 578,000 and all remaining countries only 141,000 metric tonnes. It is evident that a soybean pest rated +++ in Indonesia must be accorded a far higher priority than a different pest with the same rating in the Philippines with a soybean production in 1990 of only 10,000 tonnes. However, this argument would be partly eroded if a massive increase in production was planned in the Philippines and, especially so, if its high rating pest was currently a major factor in discouraging farmers from increasing the areas planted to soybeans.

Additional information is available for some countries. For example, in 1990 about 5 million ha were cultivated in Malaysia of a total of about 11.6 million ha suitable for agriculture (Yusof 1990). The agricultural sector accounted for 22% of the GDP, 32% of the employment and 31% of export earnings. It is characterised by the predominance of a few export-oriented tree crops, such as rubber, oil palm, coconut, cocoa and fruits. There is an efficient and well organised estate segment engaged in export-oriented production of tree crops and a relatively less efficient and unorganised smallholder segment.

Figures for some major commodities in 1990 are shown below (Yusof 1990). The discrepancies between these figures and those published by FAO have not been investigated, but are presumably due, in part, to different bases on which the information has been assembled. It is assumed that the FAO figures have been collected from all countries in a uniform fashion and that they are thus valuable in establishing broad relativity.

	ha 4 1000	production (metric T 4 1000)
rubber	1,865	1,530
oil palm	1,815	6,860
cocoa	400	270
coconut	328	1,557
rice	666	1,590
fruits	148	
vegetables and spices	7	
other field crops	50	
pepper		28
pineapple		173
tobacco		12

In recent years the production of rice, pepper and pineapple has declined due to a drastic reduction in area, whereas the production of oil palm (now 68% of world production), cocoa and tobacco has increased markedly.

In Brunei, tropical rain forest covers some 70% of the total land area of about 6,000 sq km. Agriculture accounts for about 1% of GDP and some 80% of food is imported. Agriculture is now steadily gaining in importance after decades of low priority and current policy is to diminish dependence on imported foods. The aim is to produce some 30% of the nation's rice requirements (now >95% imported) and about 1,300 ha is under rice cultivation. There is also emphasis on increasing vegetable production, based on introduced varieties including cabbage, tomato, capsicum, beans, egg plant, maize, but also relying on traditional crops such as sweet potato. Current emphasis in fruit is on durian, cempedak and jackfruit, but also on mango and banana.

Reports from Myanmar suggest that losses in major crops due to pests may be lower than in neighbouring countries. There are several possible underlying reasons. Very low pesticide usage avoids the creation of pest population upsurges; there is no year round crop production, except in limited areas; and restrictions on population movement in and out of the country doubtless slows the entry of some new pests. A four year rice surveillance network concluded that the total loss from insects, weeds and diseases was less than 4%. Second in area after rice is sesame (edible oil is in short supply) and a leafhopper (*Orosius orientalis*) which transmits phyllody disease is thus a major pest in Myanmar, but unlisted elsewhere in Southeast Asia. The production of sesame in Myanmar (207,000 tonnes) is four times that of the rest of Southeast Asia (50,000 tonnes).

In Singapore weeds are seldom a problem in Agriculture, so the few records refer mainly to amenity horticulture and re-export of commodities.

Thailand has about 23.3 m ha of agricultural land of which 1.3 m h (or 5.4%) is used for growing fruits. About 25 types are produced for sale in local markets. Of these only 10, namely longan, pineapple, durian, mango, pomelo, rambutan, litchi, sugar apple (*Anona squamosa*), papaya and banana are exported.

Table 14 Southeast Asian Crop Statistics for 1990 [Ha 000's (Metric T 000's)]

	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
Population x 1000	41,675	55,702	4,139	8,246	66,693	17,891	2,723	266	184,263	62,413
Agricultural population x 1000	19,535	33,675	2,961	5,771	40,387	5,417	27		81,845	29,024
Cereals: TOTAL	5,253(14,427)	11,615(22,921)	675(1,558)	1,825(2,455)	6,414(19,255)	648(1,685)		1(1)	13,476(51,234)	7,138(14,173)
Wheat	130(124)									
Rice paddy	4,797(13,965)	9,700(19,000)	638(1,491)	1,800(2,400)	5,900(18,400)	628(1,650)		1(1)	10,301(44,490)	3,319(9,319)
Maize	123(186)	1,713(3,675)	37(67)	25(55)	510(850)	20(35)			3,169(6,741)	3,820(4,854)
Millet	177(138)									
Sorghum		186(230)			4(5)					
Roots and Tubers: TOTAL	24(211)	1,508(20,921)	41(376)	26(219)	657(5330)	55(523)		1(1)	4(2)	398(2,722)
Potatoes	14(130)	1(12)	6(58)		37(330)				39(480)	4(50)
Sweet Potato	5(28)	10(102)	28(218)	8(90)	340(2,000)	3(36)			241(2,180)	140(670)
Cassava	5(53)	1,488(20,701)	7(100)	17(115)	280(3,000)	38(410)		(1)	1,398(17,064)	213(1,850)
Taro		5(56)								31(103)
Yams										7(27)
Fruit (excluding melons)	(958)	(5,662)	(1,195)	(239)	(3,861)	(1,229)	(1)	(5)	(6,448)	(5,846)
All citrus		(314)	(77)	(46)	(113)	(19)			(433)	(130)
Avocado									(72)	(22)
Banana		(1,613)	(23)	(115)		(505)		(1)	(2,360)	(3,803)
Plantain	(238)									
Mango		(572)	(3)	(23)		(32)			(441)	(348)
Papaya		(536)			(1200)	(28)			(354)	(99)
Pineapple		(1865)	(52)	(12)		(211)			(283)	(1,170)
Cashew		(8,500)				(14,400)		(1)	(30,000)	(6,800)
Nuts (trees)									(31)	(10)
Coffee (green)	3(1)	53(61)	17(5)	(1)	45(260)	(14)			750(391)	143(105)
Cocoa						12(4)			90(150)	19(9)
Tea		17(5)	(2)		45(31)	295(250)			108(165)	
Vegetables & melons: TOTAL	(2,149)	(2,486)	(268)	(475)	(3,738)	(3(4)	(8)	(9)	(4,095)	(887)
Watermelons		27(380)			16(155)	2(52)				4(110)
Other melons			2(42)							2(10)
Cabbage		18(194)			4(95)	1(14)			45(800)	7(75)
Cauliflower		4(27)			1(23)					
Capsicum		1(10)							213(403)	2(4)
Carrot									11(135)	
Egg plant		11(59)							73(165)	
Tomato		8(76)	3(22)				(7)		65(214)	16(113)
										20(180)

Table 14 (continued)

Table 14 (continued)

	MYAN	THAI	LAOS	CAMB	VIET	MSIA	SING	BRUN	INDO	PHIL
Cucumber, gherkins		27(206)				2(37)	(2)		68(278)	1(6)
Pumpkin, squash, gourds		16(204)				(11)			27(210)	4(50)
Onions	23(161)	14(180)	27(54)		55(165)				75(400)	6(60)
Garlic	11(39)	34(120)							15(65)	6(16)
Pulses: TOTAL	637(465)	625(459)	15(34)	45(43)	293(195)				375(464)	38(30)
Beans (dry)	400(301)	470(301)		45(43)	163(105)				350(460)	36(25)
Beans (green)		21(82)				(17)			22(85)	3(2)
Chick peas	134(101)									
Lentils	1									
Peas (dry)	20(13)									
Peas (green)		2(5)								8(24)
Soybean	32(26)	489(578)	5(4)	8(15)	120(86)				1,268(1,427)	10(10)
Groundnut in shell	524(458)	124(162)	7(6)	5(3)	220(210)				626(919)	50(35)
Castor bean		50(29)		1(2)	5(4)				5(3)	(7)
Sunflower	134(89)									
Sesame	925(207)	54(32)							9(3)	(1)
Sugarcane	46(2,205)	686(33,561)	4(96)	5(230)	135(5,700)	20(1,370)			369(25,503)	315(24,800)
Cotton lint	(21)	(132)		(5)					(3)	(4)
Other fibres		(1)			(95)				(1)	(1)
Seed cotton	141(63)	71(97)	7(15)	1(1)	14(15)				18(10)	4(11)
Cotton seed	(42)	(64)	(10)	(1)	(10)				(6)	(7)
Coconut	(183)	(1,483)		(46)	(940)	(1,140)	(5)*		(12,550)	(10,185)
Copra		(67)		(8)	(170)	(93)	(8)*		(1,250)	(2,072)
Palm kernels		(50,000)				(1,845,000)			(425,680)	(18,000)
Palm oil		(226,000)				(6,094,700)			(1,936,899)	(54,000)
Tobacco	31(40)	62(70)	12(5)	16(13)	30(30)	12(11)			246(158)	60(71)
Jute	32(34)	136(181)			3(9)	16(35)			35(30)	
Jute + jute like fibres	32(34)	136(181)			3(9)	16(35)			35(30)	
Rubber	(15)	(1,100)		(29)	(65)	(1,420)			(1,300)	(188)

\* probably re-exported

**Table 15**

**Checklist of preferred names for arthropod pests in Southeast Asia**

1. The only names included here come from the lists submitted and are those where alternatives are (or have recently been) in use in the region. Other names, where there is no current confusion, also appear in table 1.
2. The preferred name x is indicated by 'see x', or by 'x use for y', the name y being non-preferred.
3. The names are arranged alphabetically. The author and family of each preferred name appears in table 1.
4. It is evident from the number of entries that there is much to be done to stabilise the scientific names of even the major pest arthropods in the region. Accurate and consistent names are essential if information is to be effectively recorded, retrieved and communicated.
5. The checklist has been prepared with the assistance of taxonomic colleagues and is compatible with Wood (1989) 'Insects of Economic Importance: A Checklist of Preferred Names', which however, does not include many of the species listed in the table. In a few instances (e.g. use *Achaea serva* instead of *Achaea pentasema*, use *Chrysodeixis eriosoma* instead of *Chrysodeixis chalcites*, use *Papilio demoleus* instead of *Papilio demodocus* and use *Tarophagus colocasiae* instead of *Tarophagus proseppina*) all eight names are valid, but the second species of each pair does not occur in Southeast Asia. There are two instances where the names preferred in this table differ from those of Wood (1989). These are *Crocidolomia pavonana* preferred to *C. binotalis*, and *Spoladea recurvalis* preferred to *Hymenia recurvalis*. These preferred names follow the advice of taxonomists in the British Museum (Natural History).

<i>Acanthoscelides obtectus</i>	use for	<i>Bruchus obsoletus</i>
<i>Aceria mangiferae</i>	use for	<i>Eriophyes mangiferae</i>
<i>Achaea janata</i>	use for	<i>Achaea melicerta</i>
<i>Achaea melicerta</i>	use for	<i>Ophiusa janata</i>
<i>Achaea pentasema</i>	see	<i>Achaea janata</i>
<i>Achaea serva</i>	see	<i>Achaea serva</i>
<i>Acontia transversa</i>	use for	<i>Achaea pentasema</i>
<i>Acraea issoria</i>	see	<i>Xanthodes transversa</i>
<i>Acrocercops cramerella</i>	use for	<i>Pareba vesta</i>
<i>Acryptorhynchus frigidus</i>	see	<i>Conopomorpha cramerella</i>
<i>Agrius convolvuli</i>	use for	<i>Sternochetus frigidus</i>
<i>Agromyza phaseoli</i>	see	<i>Herse convolvuli</i>
<i>Agromyza sojae</i>	see	<i>Ophiomyia phaseoli</i>
<i>Allocarsidara malayensis</i>	use for	<i>Melanagromyza sojae</i>
<i>Amrasca biguttula</i>	see	<i>Tenaphalara malayensis</i>
<i>Amrasca devastans</i>	use for	<i>Amrasca devastans</i>
<i>Anomala antiqua</i>	use for	<i>Amrasca biguttula</i>
<i>Anomala cupripes</i>	use for	<i>Empoasca biguttula</i>
<i>Anomis flava</i>	use for	<i>Empoasca devastans</i>
<i>Anua coronata</i>	see	<i>Aprosterna antiqua</i>
<i>Anua tirhaca</i>	see	<i>Euchlora cupripes</i>
<i>Aonidiella orientalis</i>	use for	<i>Cosmophila flava</i>
		<i>Ophiusa coronata</i>
		<i>Ophiusa tirhaca</i>
		<i>Aspidiotus orientalis</i>

<i>Aproaerema modicella</i>	use for	<i>Aproaerema nerteria</i>
	use for	<i>Biloba subsecivella</i>
	use for	<i>Stomopteryx subsecivella</i>
<i>Aproaerema neteria</i>	see	<i>Aproaerema modicella</i>
<i>Aprosterna antiqua</i>	see	<i>Anomala antiqua</i>
<i>Archips machlopis</i>	use for	<i>Cacoecia machlopis</i>
<i>Archips micaceana</i>	use for	<i>Cacoecia micaceana</i>
<i>Archips tabescens</i>	use for	<i>Cacoecia tabescens</i>
<i>Argyrogramma signata</i>	use for	<i>Phytometra signata</i>
	use for	<i>Plusia signata</i>
<i>Artogeia canidia</i>	see	<i>Pieris canidia</i>
<i>Artona catoxantha</i>	use for	<i>Zeuxippa catoxantha</i>
<i>Aspidiotus orientalis</i>	see	<i>Aonidiella orientalis</i>
<i>Aspongopus fuscus</i>	see	<i>Coridius fuscus</i>
<i>Aulacaspis mangiferae</i>	see	<i>Aulacaspis tuberculatus</i>
<i>Aulacaspis tubercularis</i>	use for	<i>Aulacaspis mangiferae</i>
<i>Aulacophora frontalis</i>	use for	<i>Ceratia frontalis</i>
<i>Aulacophora similis</i>	use for	<i>Rhaphidopalpa similis</i>
<i>Bactrocera spp.</i>	use for	<i>Dacus spp.</i>
<i>Bactrocera hageni</i>	see	<i>Bactrocera tau</i>
<i>Bactrocera tau</i>	use for	<i>Bactrocera hageni</i>
<i>Basilepta viridipenne</i>	use for	<i>Nodostoma viridipenne</i>
<i>Batocera albofasciata</i>	see	<i>Batocera rubus</i>
<i>Batocera rubus</i>	use for	<i>Batocera albofasciatus</i>
<i>Bemisia myricae</i>	see	<i>Parabemisia myricae</i>
<i>Biloba subsecivella</i>	see	<i>Aproaerema modicella</i>
<i>Bombotelia jocosatrix</i>	see	<i>Penicillaria jocosatrix</i>
<i>Bruchus analis</i>	see	<i>Callosobruchus analis</i>
<i>Bruchus chinensis</i>	see	<i>Callosobruchus chinensis</i>
<i>Bruchus obsoletus</i>	see	<i>Acanthoscelides obtectus</i>
<i>Cacoecia machlopis</i>	see	<i>Archips machlopis</i>
<i>Cacoecia micaceana</i>	see	<i>Archips micaceana</i>
<i>Cacoecia tabescens</i>	see	<i>Archips tabescens</i>
<i>Cadamustis typicus</i>	see	<i>Stephanitis typicus</i>
<i>Calliteara horsfieldii</i>	use for	<i>Dasychira horsfieldii</i>
<i>Callosobruchus analis</i>	use for	<i>Bruchus analis</i>
<i>Callosobruchus chinensis</i>	use for	<i>Bruchus chinensis</i>
<i>Cataenococcus hispidus</i>	use for	<i>Planococcus hispidus</i>
<i>Catochrysops cnejus</i>	see	<i>Euchrysops cnejus</i>
<i>Ceratia frontalis</i>	see	<i>Aulacophora frontalis</i>
<i>Ceratovacuna lanigera</i>	use for	<i>Oregma lanigera</i>
<i>Chilo infuscatellus</i>	use for	<i>Chilotraea infuscatellus</i>
		<i>Proceras infuscatellus</i>
<i>Chilo polychrysus</i>	use for	<i>Chilotraea polychrysa</i>
<i>Chilo sacchariphagus</i>	use for	<i>Proceras venosatus</i>
<i>Chilotraea infuscatellus</i>	see	<i>Chilo infuscatellus</i>
<i>Chilotraea polychrysa</i>	see	<i>Chilo polychrysus</i>
<i>Chionaspis minor</i>	use for	<i>Pinnaspis minor</i>
<i>Chionaspis papayae</i>	see	<i>Phenacaspis papayae</i>
<i>Chromatomyia horticola</i>	use for	<i>Phytomyza atricornis</i>
<i>Chrysodeixis chalcites</i>	see	<i>Chrysodeixis eriosoma</i>
<i>Chrysodeixis eriosoma</i>	use for	<i>Chrysodeixis chalcites</i>
		<i>Plusia chalcites</i>
		<i>Plusia eriosoma</i>
<i>Chrysomphalus aonidum</i>	use for	<i>Chrysomphalus ficus</i>
<i>Chrysomphalus ficus</i>	see	<i>Chrysomphalus aonidum</i>
<i>Chunra niveosparsa</i>	see	<i>Idioscopus niveosparsus</i>

Table 15 (continued)

<i>Clania variegata</i>	see	<i>Cryptothelia variegata</i>
<i>Conogethes punctiferalis</i>	use for	<i>Dichocrocis punctiferalis</i>
<i>Conopomorpha cramerella</i>	use for	<i>Acrocercops cramerella</i>
<i>Coptotermes havilandi</i>	use for	<i>Coptotermes javanicus</i>
<i>Coptotermes javanicus</i>	see	<i>Coptotermes havilandi</i>
<i>Coridius fuscus</i>	use for	<i>Aspongopus fuscus</i>
<i>Cosmophila flava</i>	see	<i>Anomis flava</i>
<i>Crocidolomia binotalis</i>	see	<i>Crocidolomia pavonana</i>
<i>Crocidolomia pavonana</i>	use for	<i>Crocidolomia binotalis</i>
<i>Cryptorhynchus goniocnemis</i>	see	<i>Sternochetus goniocnemis</i>
<i>Cryptorhynchus gravis</i>	see	<i>Sternochetus gravis</i>
<i>Cryptorhynchus mangiferae</i>	see	<i>Sternochetus mangiferae</i>
<i>Cryptothelia variegata</i>	use for	<i>Clania variegata</i>
<i>Dacus spp.</i>	see	<i>Bactrocera spp.</i>
<i>Dacus hageni</i>	see	<i>Bactrocera tau</i>
<i>Darna diducta</i>	use for	<i>Ploneta diducta</i>
<i>Darna trima</i>	use for	<i>Orthocraspeda trima</i>
<i>Dasineura mangiferae</i>	see	<i>Erosomyia mangiferae</i>
<i>Dasychira horsfieldii</i>	see	<i>Calliteara horsfieldii</i>
<i>Dasychira mendosa</i>	see	<i>Olene mendosa</i>
<i>Diaphania caesalis</i>	see	<i>Glyphodes caesalis</i>
<i>Diaphania indica</i>	use for	<i>Palpita indica</i>
<i>Diaphania pulverulentis</i>	see	<i>Glyphodes pulverulentis</i>
<i>Dichocrocis punctiferalis</i>	see	<i>Conogethes punctiferalis</i>
<i>Dicladispa armigera</i>	use for	<i>Hispa armigera</i>
<i>Dinocoris nepalensis</i>	use for	<i>Elasmognathus nepalensis</i>
<i>Earias fabia</i>	see	<i>Earias vittella</i>
<i>Earias vittella</i>	use for	<i>Earias fabia</i>
<i>Elasmognathus nepalensis</i>	see	<i>Dinocoris nepalensis</i>
<i>Empoasca biguttula</i>	see	<i>Amrasca devastans</i>
<i>Empoasca devastans</i>	see	<i>Amrasca devastans</i>
<i>Empoasca formosana</i>	see	<i>Jacobiasca formosana</i>
<i>Eotetranychus cendanai</i>	use for	<i>Eutetanychus cendanae</i>
<i>Epestia cautella</i>	use for	<i>Etiella cautella</i>
<i>Epilachna vigintioctopunctata</i>	use for	<i>Henosepilachna vigintioctopunctata</i>
<i>Eriophyes boisi</i>	see	<i>Eriophyes doctersi</i>
<i>Eriophyes doctersi</i>	use for	<i>Eriophyes boisi</i>
<i>Eriophyes mangiferae</i>	see	<i>Aceria mangiferae</i>
<i>Erosomyia mangiferae</i>	use for	<i>Dasineura mangiferae</i>
<i>Etiella cautella</i>	see	<i>Epestia cautella</i>
<i>Euchlora cupripes</i>	see	<i>Anomala cupripes</i>
<i>Euchrysops cnejus</i>	use for	<i>Catachrysops cnejus</i>
<i>Eutetranychus cendanai</i>	see	<i>Eutetanychus cendanai</i>
<i>Ferrisia virgata</i>	use for	<i>Ferrisiana virgata</i>
<i>Ferrisiana virgata</i>	see	<i>Ferrisia virgata</i>
<i>Glyphodes bivatalis</i>	use for	<i>Margaronia bivatalis</i>
<i>Glyphodes caesalis</i>	use for	<i>Diaphania caesalis</i>
<i>Glyphodes pulverulentalis</i>	use for	<i>Diaphania pulverulentalis</i>
<i>Hedylepta dimenialis</i>	see	<i>Margaronia pulverulentalis</i>
<i>Hedylepta indicata</i>	use for	<i>Lamprosema diemenalis</i>
<i>Hedythia suturalis</i>	see	<i>Lamprosema indicata</i>
<i>Helicoverpa armigera</i>	use for	<i>Medythia suturalis</i>
<i>Helicoverpa assulta</i>	use for	<i>Heliothis armigera</i>
<i>Heliothis armigera</i>	see	<i>Heliothis assulta</i>
<i>Heliothis assulta</i>	see	<i>Helicoverpa armigera</i>
<i>Hellula undalis</i>	use for	<i>Helicoverpa assulta</i>
		<i>Oebia undalis</i>

<i>Helopeltis theivora</i>	use for	<i>Helopeltis theobromae</i>
<i>Helopeltis theobromae</i>	see	<i>Helopeltis theivora</i>
<i>Hemerophila atrilineata</i>	see	<i>Phthorardria atrilineata</i>
<i>Henosepilachna vigintioctopunctata</i>	see	<i>Epilachna vigintioctopunctata</i>
<i>Herse convolvuli</i>	see	<i>Agrius convolvuli</i>
<i>Hispa armigera</i>	see	<i>Dicladispa armigera</i>
<i>Hymenia recurvalis</i>	see	<i>Spoladea recurvalis</i>
<i>Hyperaeschrella dentata</i>	see	<i>Hyperaeschrella insulicola</i>
<i>Hyperaeschrella insulicola</i>	use for	<i>Hyperaeschrella dentata</i>
<i>Hypothenemus hampei</i>	use for	<i>Stephanoderes hampei</i>
<i>Hypothenemus psidii</i>	use for	<i>Stephanoderes psidii</i>
<i>Icerya pulcher</i>	see	<i>Icerya pulchra</i>
<i>Icerya pulchra</i>	use for	<i>Icerya pulcher</i>
<i>Idiocerus clypealis</i>	see	<i>Idioscopus clypealis</i>
<i>Idiocerus niveosparsus</i>	see	<i>Idioscopus niveosparsus</i>
<i>Idioscopus clypealis</i>	use for	<i>Idiocerus clypealis</i>
<i>Idioscopus nigroclypealis</i>	use for	<i>Idioscopus nigroclypealis</i>
<i>Idioscopus niveosparsus</i>	use for	<i>Idioscopus clypealis</i>
<i>Jacobiasca formosana</i>	use for	<i>Chunra niveosparsa</i>
<i>Kerria javana</i>	use for	<i>Idiocerus niveosparsus</i>
<i>Laccifer javanus</i>	see	<i>Empoasca formosana</i>
<i>Lamprosema diemenalis</i>	use for	<i>Laccifer javanus</i>
<i>Lamprosema indicata</i>	see	<i>Kerria javana</i>
<i>Latoia lepida</i>	see	<i>Hedylepta diemenalis</i>
<i>Leptocoris acuta</i>	use for	<i>Hedylepta indicata</i>
<i>Leptocoris varicornis</i>	see	<i>Parasa lepida</i>
<i>Leptoglossus australis</i>	see	<i>Leptocoris varicornis</i>
<i>Leptoglossus gonagra</i>	use for	<i>Leptocoris acuta</i>
<i>Leucania unipuncta</i>	see	<i>Leptoglossus australis</i>
<i>Leptoglossus membranaceus</i>	see	<i>Leptoglossus gonagra</i>
<i>Lohita grandis</i>	use for	<i>Macroceroea grandis</i>
<i>Longiunguis sacchari</i>	see	<i>Melanaphis sacchari</i>
<i>Macroceroea grandis</i>	see	<i>Lohita grandis</i>
<i>Margaronia bivatalis</i>	see	<i>Glyphodes bivatalis</i>
<i>Margaronia indica</i>	see	<i>Diaphania indica</i>
<i>Margaronia pulveruntalis</i>	see	<i>Glyphodes pulverulentalis</i>
<i>Medythia suturalis</i>	use for	<i>Hedythia suturalis</i>
<i>Melanagromyza phaseoli</i>	see	<i>Ophiomyia phaseoli</i>
<i>Melanagromyza sojae</i>	use for	<i>Agromyza sojae</i>
<i>Melanaphis sacchari</i>	use for	<i>Longiunguis sacchari</i>
<i>Menophra atrilineata</i>	see	<i>Phthorardria atrilineata</i>
<i>Metatetranychus bioculatus</i>	see	<i>Oligonychus coffeae</i>
<i>Microtermes pakistaniicus</i>	use for	<i>Microtermes pallidus</i>
<i>Microtermes pallidus</i>	see	<i>Microtermes pakistaniicus</i>
<i>Mudaria</i> sp.	use for	<i>Plagideicta</i> sp.
<i>Mycterothrips setiventris</i>	use for	<i>Physothrips setiventris</i>
<i>Mythimna separata</i>	use for	<i>Leucania unipuncta</i>
<i>Neostauropus alternus</i>	use for	<i>Pseudaletia separata</i>
<i>Nephrotettix apicalis</i>	see	<i>Stauropus alternus</i>
<i>Nephrotettix bipunctata</i>	see	<i>Nephrotettix nigropictus</i>
<i>Nephrotettix impicticeps</i>	see	<i>Nephrotettix virescens</i>
<i>Nephrotettix nigropictus</i>	use for	<i>Nephrotettix virescens</i>
		<i>Nephrotettix apicalis</i>

Table 15 (continued)

<i>Nephrotettix virescens</i>	use for	<i>Nephrotettix bipunctatus</i>
<i>Nipaecoccus nipae</i>	use for	<i>Nephrotettix impicticeps</i>
<i>Nodostoma viridipenne</i>	see	<i>Pseudococcus nipae</i>
<i>Nomadacris succincta</i>	use for	<i>Basilepta viridipenne</i>
<i>Nymphula depunctalis</i>	see	<i>Patanga succincta</i>
<i>Oebia undalis</i>	see	<i>Papaponyx stagnalis</i>
<i>Olene mendosa</i>	use for	<i>Hellula undalis</i>
<i>Olethreutes discana</i>	see	<i>Dasychira mendosa</i>
<i>Oligonychus coffeae</i>	use for	<i>Statherotis discana</i>
<i>Ophiomyia phaseoli</i>	use for	<i>Metatetranychus bioculatus</i>
<i>Ophiusa coronata</i>	use for	<i>Agromyza phaseoli</i>
<i>Ophiusa janata</i>	see	<i>Melanagromyza phaseoli</i>
<i>Ophiusa tirhaca</i>	use for	<i>Anua coronata</i>
<i>Oregma lanigera</i>	see	<i>Achaea janata</i>
<i>Orosius albicinctus</i>	see	<i>Anua tirhaca</i>
<i>Orosius orientalis</i>	use for	<i>Ceratovacuna lanigera</i>
<i>Orseolia oryzae</i>	use for	<i>Orosius orientalis</i>
<i>Orthocraspeda trima</i>	see	<i>Orosius albicinctus</i>
<i>Ostrinia nubilalis</i>	use for	<i>Pachydiplipsis oryzae</i>
<i>Pachydiplipsis oryzae</i>	see	<i>Darna trima</i>
<i>Palpita indica</i>	see	<i>Pyrausta nubilalis</i>
<i>Papilio demodocus</i>	see	<i>Orseolia oryzae</i>
<i>Papilio demoleus</i>	use for	<i>Diaphania indica</i>
<i>Parabemisia myricae</i>	use for	<i>Papilio demoleus</i>
<i>Paraponyx stagnalis</i>	use for	<i>Papilio demodocus</i>
<i>Parasa lepida</i>	use for	<i>Bemisia myricae</i>
<i>Parasaissitia nigra</i>	use for	<i>Nymphula depunctalis</i>
<i>Pareba vesta</i>	see	<i>Latoia lepida</i>
<i>Patanga succincta</i>	see	<i>Saissetia nigra</i>
<i>Penicillaria jocosatrix</i>	use for	<i>Acraea issoria</i>
<i>Phenacaspis papayae</i>	use for	<i>Nomadacris succincta</i>
<i>Phenacoccus iceryioides</i>	see	<i>Bombotelia jocosatrix</i>
<i>Philosamia cynthia</i>	see	<i>Chionaspis papayae</i>
<i>Phthorardria atrilineata</i>	use for	<i>Rastrococcus iceryioides</i>
<i>Phthorimaea heliopa</i>	see	<i>Samia cynthia</i>
<i>Phyllotreta flexuosa</i>	use for	<i>Hemerophila atrilineata</i>
<i>Phyllotreta sinuata Redtenbacher</i>	see	<i>Menophra atrilineata</i>
<i>Phyllotreta sinuata Stephens</i>	see	<i>Scrobipalpa heliopa</i>
<i>Phyllotreta vittata</i>	use for	<i>Phyllotreta sinuata (Stephens)</i>
<i>Physothrips setiventris</i>	see	<i>Phyllotreta vittata</i>
<i>Phytometra signata</i>	see	<i>Phyllotreta flexuosa</i>
<i>Phytomyza atricornis</i>	see	<i>Phyllotreta sinuata Redtenbacher</i>
<i>Pieris canidia</i>	use for	<i>Mycterothrips setiventris</i>
<i>Piezodorus hybneri</i>	use for	<i>Argyrogramma signata</i>
<i>Piezodorus rubrofasciatus</i>	see	<i>Chromatomyia horticola</i>
<i>Plagideicta sp.</i>	see	<i>or Chromatomyia syngenesiae</i>
<i>Planococcus citri</i>	use for	<i>Artogeia canidia</i>
<i>Planococcus hispidus</i>	see	<i>Piezodorus rubrofasciatus</i>
<i>Ploneta diducta</i>	see	<i>Piezodorus hybneri</i>
<i>Plusia chalcites</i>	see	<i>Mudaria sp.</i>
<i>Plusia eriosoma</i>	see	<i>Pseudococcus citri</i>
<i>Plusia signata</i>	see	<i>Cataenococcus hispidus</i>

<i>Proceras infuscatellus</i>	see	<i>Chilo infuscatellus</i>
<i>Proceras venosatus</i>	see	<i>Chilo sacchariphagus</i>
<i>Pseudaletia separata</i>	see	<i>Mythimna separata</i>
<i>Pseudococcus citri</i>	see	<i>Planococcus citri</i>
<i>Pseudococcus nipae</i>	see	<i>Nipaecoccus nipae</i>
<i>Pyrameis indica</i>	see	<i>Vanessa indica</i>
<i>Pyrausta nubilalis</i>	see	<i>Ostrinia nubilalis</i>
<i>Rastrococcus iceryoides</i>	use for	<i>Phenacoccus iceryoides</i>
<i>Rhaphidopalpa similis</i>	see	<i>Aulacophora similis</i>
<i>Rhynchoscoris poseidon</i>	use for	<i>Rhynchochorus serratus</i>
<i>Rhynchoscoris serratus</i>	see	<i>Rhynchochorus poseidon</i>
<i>Saccharicoccus sacchari</i>	use for	<i>Tryonymus sacchari</i>
<i>Samia cynthia</i>	use for	<i>Philosamia cynthia</i>
<i>Saissetia nigra</i>	see	<i>Parasaissetia nigra</i>
<i>Schoenobius bipunctifer</i>	see	<i>Scirpophaga incertulas</i>
<i>Scirpophaga excerptalis</i>	use for	<i>Scirpophaga monostigma</i>
<i>Scirpophaga incertulas</i>	use for	<i>Schoenobius bipunctifer</i>
<i>Scirpophaga innotata</i>	use for	<i>Tryporyza incertulas</i>
<i>Scirpophaga monostigma</i>	see	<i>Tryporyza innotata</i>
<i>Scirpophaga nivella</i>	use for	<i>Scirpophaga excerptalis</i>
<i>Scotinophara cinerea</i>	use for	<i>Tryporyza nivella</i>
<i>Scotinophara vermiculata</i>	see	<i>Scotinophara vermiculata</i>
<i>Scrobipalpa heliopa</i>	use for	<i>Scotinophara cinerea</i>
<i>Spodoptera exigua</i>	use for	<i>Phthorimaea heliopa</i>
<i>Spoladea recurvalis</i>	use for	<i>Susunai exigua</i>
<i>Statherotis discana</i>	use for	<i>Hymenia recurvalis</i>
<i>Stauropus alternus</i>	see	<i>Olethreutes discana</i>
<i>Stephanitis typica</i>	use for	<i>Neostauropus alternus</i>
<i>Stephanoderes hampei</i>	see	<i>Cadamustus typicus</i>
<i>Stephanoderes psidii</i>	see	<i>Hypothenemus hampei</i>
<i>Sternochetus frigidus</i>	use for	<i>Hypothenemus psidii</i>
<i>Sternochetus goniocnemis</i>	use for	<i>Acryptorhynchus frigidus</i>
<i>Sternochetus gravis</i>	use for	<i>Cryptorhynchus goniocnemis</i>
<i>Sternochetus mangiferae</i>	use for	<i>Cryptorhynchus gravis</i>
<i>Stomopteryx subsecivella</i>	see	<i>Cryptorhynchus mangiferae</i>
<i>Susunai exigua</i>	see	<i>Aproaerema modicella</i>
<i>Tarophagus colocasiae</i>	use for	<i>Spodoptera exigua</i>
<i>Tarophagus proseppina</i>	see	<i>Tarophagus colocasiae</i>
<i>Tenaphalara malayensis</i>	see	<i>Allocarsidara malayensis</i>
<i>Tetranychus telarius</i>	see	<i>Tetranychus urticae</i>
<i>Tetranychus urticae</i>	use for	<i>Tetranychus telarius</i>
<i>Thosea biguttata</i>	see	<i>Thosea vetusta</i>
<i>Thosea vetusta</i>	use for	<i>Thosea biguttata</i>
<i>Toxoptera aurantii</i>	use for	<i>Toxoptera bradyi</i>
<i>Toxoptera bradyi</i>	see	<i>Toxoptera aurantii</i>
<i>Trialeurodes rara</i>	see	<i>Trialeurodes ricini</i>
<i>Trialeurodes ricini</i>	use for	<i>Trialeurodes rara</i>
<i>Tryonymus sacchari</i>	see	<i>Saccharicoccus sacchari</i>
<i>Tryporyza incertulas</i>	see	<i>Scirpophaga incertulas</i>
<i>Tryporyza innotata</i>	see	<i>Scirpophaga innotata</i>
<i>Tryporyza nivella</i>	see	<i>Scirpophaga nivella</i>
<i>Vanessa indica</i>	use for	<i>Pyrameis indica</i>
<i>Xanthodes transversa</i>	use for	<i>Acontia transversa</i>
<i>Xyleborus morstatti</i>	see	<i>Xylosandrus compactus</i>
<i>Xylosandrus compactus</i>	use for	<i>Xyleborus morstatti</i>
<i>Zeuxippa catoxantha</i>	see	<i>Artona catoxantha</i>

**Table 16**

**Checklist of preferred names for weeds in Southeast Asia**

<i>Ageratina adenophora</i>	use for	<i>Eupatorium adenophorum</i>
<i>Alternanthera sessilis</i>	use for	<i>Alternanthera triandra</i>
<i>Alternanthera triandra</i>	see	<i>Alternanthera sessilis</i>
<i>Amaranthus blitum</i>	see	<i>Amaranthus lividus</i>
<i>Amaranthus lividus</i>	use for	<i>Amaranthus blitum</i>
<i>Aneilema nudiflorum</i>	see	<i>Murdannia nudiflora</i>
<i>Asystasia coromandeliana</i>	see	<i>Asystasia gangetica</i>
<i>Asystasia gangetica</i>	use for	<i>Asystasia coromandeliana</i>
<i>Borreria articularis</i>	use for	<i>Spermacae hispida</i>
<i>Chloris barbata</i>	see	<i>Chloris inflata</i>
<i>Chloris inflata</i>	use for	<i>Chloris barbata</i>
<i>Chromolaena odorata</i>	use for	<i>Eupatorium odoratum</i>
<i>Cleome ciliata</i>	see	<i>Cleome rutidosperma</i>
<i>Cleome rutidosperma</i>	use for	<i>Cleome ciliata</i>
<i>Commelinia nudiflora</i>	see	<i>Murdannia nudiflora</i>
<i>Crotalaria pallida</i>	use for	<i>Crotalaria striata</i>
<i>Crotalaria striata</i>	see	<i>Crotalaria pallida</i>
<i>Cyperus babakan</i>	use for	<i>Cyperus babakensis</i>
<i>Cyperus babakensis</i>	see	<i>Cyperus babakan</i>
<i>Cyperus halpan</i>	see	<i>Cyperus haspan</i>
<i>Cyperus haspan</i>	use for	<i>Cyperus halpan</i>
<i>Cyrtococcum oxyphyllum</i>	use for	<i>Panicum pillipes</i>
<i>Cyrtococcum trigonum</i>	use for	<i>Panicum trigonum</i>
<i>Dicranopteris linearis</i>	see	<i>Gleichenia linearis</i>
<i>Digitaria adscendens</i>	see	<i>Digitaria ciliaris</i>
<i>Digitaria ciliaris</i>	use for	<i>Digitaria adscendens</i>
<i>Digitaria longiflora</i>	see	<i>Digitaria violescens</i>
<i>Digitaria violescens</i>	use for	<i>Digitaria longiflora</i>
<i>Eclipta alba</i>	see	<i>Eclipta prostrata</i>
<i>Eclipta prostrata</i>	use for	<i>Eclipta alba</i>
<i>Eleocharis chaetaria</i>	see	<i>Eleocharis retroflexa</i>
<i>Eleocharis retroflexa</i>	use for	<i>Eleocharis chaetaria</i>
<i>Eupatorium adenophorum</i>	see	<i>Ageratina adenophora</i>
<i>Eupatorium odoratum</i>	see	<i>Chromolaena odorata</i>
<i>Euphorbia geniculata</i>	see	<i>Euphorbia heterophylla</i>
<i>Euphorbia heterophylla</i>	use for	<i>Euphorbia geniculata</i>
<i>Euphorbia prunifolia</i>	see	<i>Euphorbia prunifolia</i>
<i>Gleichenia linearis</i>	use for	<i>Euphorbia heterophylla</i>
<i>Hedyotis corymbosa</i>	see	<i>Dicranopteris linearis</i>
<i>Hedyotis biflora</i>	see	<i>Oldenlandia corymbosa</i>
<i>Hedyotis racemosa</i>	use for	<i>Hedyotis racemosa</i>
<i>Hydrolea glabra</i>	see	<i>Hedyotis biflora</i>
<i>Hydrolea zeylanica</i>	use for	<i>Hydrolea zeylanica</i>
<i>Hymenachne actigluma</i>	use for	<i>Hydrolea glabra</i>
<i>Hymenachne pseudointerrupta</i>	see	<i>Hymenachne psuedointerrupta</i>
<i>Ischaemum ciliare</i>	see	<i>Panicum amplexicaule</i>
<i>Ischaemum indicum</i>	use for	<i>Hymenachne actigluma</i>
<i>Jussiaea linifolia</i>	see	<i>Ischaemum indicum</i>
<i>Jussiaea repens</i>	see	<i>Ischaemum ciliare</i>
<i>Lemna minor</i>	see	<i>Ludwigia hyssopifolia</i>
		<i>Ludwigia adscendens</i>
		<i>Lemna purpusilla</i>

Table 16 (continued)

<i>Lemna purpusilla</i>	use for	<i>Lemna minor</i>
<i>Leucas capitata</i>	see	<i>Leucas cephalotes</i>
<i>Leucas cephalotes</i>	use for	<i>Leucas capitata</i>
<i>Ludwigia adscendens</i>	use for	<i>Jussiaea repens</i>
<i>Ludwigia hyssopifolia</i>	use for	<i>Jussiaea linifolia</i>
<i>Macroptilium lathyroides</i>	use for	<i>Phaseolus lathroides</i>
<i>Marsilea crenata</i>	see	<i>Marsilea minuta</i>
<i>Marsilea minuta</i>	use for	<i>Marsilea crenata</i>
<i>Melochia concatenata</i>	see	<i>Melochia corchorifolia</i>
<i>Melochia corchorifolia</i>	use for	<i>Melochia concatenata</i>
<i>Murdannia nudiflora</i>	use for	<i>Aneilema nudiflorum</i>
		<i>Commelina nudiflora</i>
<i>Oldenlandia corymbosa</i>	see	<i>Hedyotis racemosa</i>
<i>Panicum amplexicaule</i>	see	<i>Hymenachne actigluma</i>
<i>Panicum pillipes</i>	see	<i>Cyrtococcum oxyphyllum</i>
<i>Panicum trigonum</i>	see	<i>Cyrtococcum trigonum</i>
<i>Paspalum commersonii</i>	see	<i>Paspalum scrobiculatum</i>
<i>Paspalum distichum</i>	use for	<i>Paspalum paspaloides</i>
<i>Paspalum paspaloides</i>	see	<i>Paspalum distichum</i>
<i>Paspalum scrobiculatum</i>	use for	<i>Paspalum commersonii</i>
<i>Phaseolus lathroides</i>	see	<i>Macroptilium lathyroides</i>
<i>Phyllanthus fraternus</i>	use for	<i>Phyllanthus niruri</i>
<i>Phyllanthus niruri</i>	see	<i>Phyllanthus fraternus</i>
<i>Polygonum pulchrum</i>	see	<i>Polygonum tomentosum</i>
<i>Polygonum tomentosum</i>	use for	<i>Polygonum pulchrum</i>
<i>Rottboellia cochinchinensis</i>	use for	<i>Rottboellia exalata</i>
<i>Rottboellia exalata</i>	see	<i>Rottboellia cochinchinensis</i>
<i>Spermacoce hispida</i>	see	<i>Borreria articularis</i>

## 5. Useful Literature

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