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# The Distribution and Importance of Arthropod Pests and Weeds of Agriculture in Myanmar

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The Australian Centre for International Agricultural Research (ACIAR) was established in June 1982 by an Act of the Australian Parliament. Its primary mandate is to help identify agricultural problems in developing countries and to commission collaborative research between Australian and developing country researchers in fields where Australia has special competence.

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# *Foreword*

Ever since its formation in 1984, ACIAR has strongly encouraged the assembling for neighbouring countries of information on the distribution and importance of their major pests of agricultural crops. (Chile: Koch and Waterhouse 2000; China: Li et al. 1997; Pacific: Waterhouse 1997; Southeast Asia: Waterhouse 1993). Such information is also of great value both to these countries as well as to neighbouring countries in determining their own priorities. Furthermore it is of considerable importance to ACIAR (and other aid bodies) in determining the allocation of funding.

When major pests are found to be exotic and the production of dossiers reveal that they have been the targets elsewhere of successful biological control programs, this has led to valuable, sometimes very valuable, (eg Waterhouse et al. 1999) biological control programs supported by ACIAR.

It is confidently anticipated that this publication will lead to information exchange between countries and improved control of agricultural pests in Myanmar.

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## အမှာစာ

ဩစတြေးလျနိုင်ငံ အပြည်ပြည်ဆိုင်ရာ စိုက်ပျိုးရေးသုတေသနဌာနသည် ၁၉၈၄ ခုနှစ်၊ စတင်တည်ထောင်ခဲ့ရာမှ အိမ်နီးချင်းနိုင်ငံများ၌ စိုက်ပျိုးရေးသီးနှံ များပေါ်တွင် ကျရောက်သည့် အဓိကဖျက်ပိုးများ၏ အရေးပါမှုနှင့် ပျံ့နှံ့မှုများကိုစာရင်းပြုစုရန် အားပေးခဲ့ပါသည်။ (ဥပမာ။ ။ ချီးလီ ။ ကိုရိုနှင့် ဝါးတားဟောင့်စ် ၂၀၀၀၊ တရုတ် ။ လီနှင့်အပေါင်းပါများ ၁၉၉၇၊ ပစိဖိတ် ။ ဝါးတားဟောင့်စ် ၁၉၉၇၊ အရှေ့တောင် အာရှ ။ ဝါးတားဟောင့်စ် ၁၉၉၃) ။ ဖော်ပြပါ မှတ်တမ်း ပြုစုခြင်းများသည် မိမိနိုင်ငံများအတွက်သာမက အိမ်နီးချင်း နိုင်ငံများအတွက်ပါ လုပ်ငန်း ဦးစား ပေးမှုအတွက် တန်ဖိုးများစွာရှိပါသည်။ ထိုမျှသာမက ဩစတြေးလျနိုင်ငံဆိုင်ရာ အပြည်ပြည် သုတေသနဌာနနှင့် အခြားငွေကြေးပံ့ပိုးမည့်နိုင်ငံများအတွက် ငွေကြေး ခွဲဝေမှုကို အထောက်အကူ ဖြစ်စေပါသည်။

တိုင်းပြည်တစ်ပြည်အတွင်း အဓိကဖျက်ပိုးများဟု သတ်မှတ်ခံရသည့် ဖျက်ပိုးများ သည် ပြည်ပတွင် လည်းကျရောက်သဖြင့် သဘာဝရန်သူပိုးများနှင့် အောင်မြင်စွာ နှိမ်နင်းနိုင်သည့်သာဓကများ၊ စီမံကိန်းများ ရှိနေပါကလည်း ဤအပြည်ပြည်ဆိုင်ရာ သုတေသနဌာနမှ စီမံကိန်းချမှတ်၍ အထောက်အပံ့များ ပေးခဲ့ပါသည်။

ယူဠာဤစာအုပ်ထုတ်ဝေခြင်းဖြင့် မြန်မာနိုင်ငံအတွင်း စိုက်ပျိုးသီးနှံများတွင်ကျရောက်သည့် ဖျက်ပိုးများ အား ကာကွယ်နှိမ်နင်းခြင်း၊ တိုင်းပြည်အချင်းချင်း သတင်းဖလှယ်ခြင်း ဖြင့် ပိုမိုတိုးတက်အောင်မြင် စေမည်ဟု ယုံကြည်မျှော်လင့်ပါသည်။

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It would not have been possible to assemble all of the information presented without the generous provision of records by a number of contributors in Myanmar. Those involved were:

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# Abstract

Information is presented in 19 tables dealing with the importance of 222 arthropod pests and 170 weeds of agriculture in Myanmar. The distribution and importance of the arthropod pests in the 14 agricultural regions of Myanmar is also given.

A simple 4-level rating system was adopted to assess relative importance in 10 crops or groups of crops. This indicated that there were 44 arthropod pests of major importance in most years. The most important of these, in decreasing order, are *Spodoptera litura*, *Helicoverpa armigera*, *Agrotis ipsilon*, *Spilarctia obliqua*, *Thrips palmi*, *Aphis gossypii*, *Odontotermes* spp., *Agrotis segetum*, *Bactrocera cucurbitae*, *Bactrocera dorsalis* and *Scirtothrips dorsalis*.

The most important weeds, in alphabetical order, are *Amaranthus spinosus*, *Cyperus iria*, *Cyperus rotundus*, *Echinochloa colonum*, *Fimbristylis miliacea*, *Imperata cylindrica*, *Leucas cephalotes*, *Mimosa pudica*, *Mitracarpus villosus* and *Trianthema portulacastrum*.

This information is designed to assist in establishing priorities for control projects.

## ၁။ ကောက်နှုတ်ချက်

မြန်မာ့စိုက်ပျိုးရေးကဏ္ဍတွင် အရေးကြီးအင်းဆက်ဖျက်ပိုးမျိုးစိပ် (၂၂၂) မျိုး နှင့် ပေါင်းမြက် မျိုးစိပ် ၁၇၀ တို့ကို ဇယား (၁) မှ (၁၉) အထိ မှတ်တမ်းတင်ဖော်ပြထားပါသည်။ အင်းဆက် ဖျက်ပိုးတို့၏ အရေးပါမှုနှင့် ပျံ့နှံ့မှုများကို တိုင်း/ပြည်နယ် (၁၄) ခုအလိုက်လည်း အသေးစိတ် ဖော်ပြထားပါသည်။

သီးနှံအုပ်စု (၁၀) မျိုးတို့တွင် လွယ်ကူစွာသတ်မှတ်နိုင်သည့် အမှတ်ပေးအဆင့် (၄) ဆင့်ကို အသုံးပြု၍ ဖျက်ပိုးတို့၏ အရေးပါပုံကိုဆန်းစစ်ထားရာ နှစ်စဉ်အဓိကဖျက်ပိုးမျိုးစိတ် (၄၄) မျိုး ကျရောက်ကြောင်း တွေ့ရှိရပါသည်။ ယင်းတို့အနက်အရေးပါမှုများမှာ၊ နဲရာအလိုက် ဖော်ပြရလျှင် ငမြောင်တောင် (*Spodoptera litura*)၊ သီးလုံးဖောက်ပိုး (*Helicoverpa armigera*)၊ ပိုးနဂါး (*Agrotis ipsilon*) ၊ ရွက်စုံစားခုမွှေးရှည် (*Spilarctia obliqua*) ၊ ခရမ်းသရစ်ပိုး (*Thrips palmi*)၊ ယုပိုး (*Aphis gossypii*) ၊ ခြ (*Odontotermes spp*) ၊ အပင်ဖြတ်ပိုး (*Agrotis segetum*) ၊ ဘူးသခွါးသီးထိုးယင် (*Bactrocera cucurbitae*) ၊ သစ်သီးထိုးယင် (*Bactrocera dorsalis*)၊ နှင့် ငြပ်/ဝါ သရစ်ပိုး (*Scirtothrips dorsalis*) တို့ဖြစ်ကြပါသည်။

အကွာရာစဉ်အလိုက် အရေးကြီးပေါက်ရောက်သော ပေါင်းမျိုးစိပ်များသည် ထိကရုံး (*Mimosa pudica*)၊ ပင့်ကူထိပ်ပိတ် (*Leucas cephalotes*)၊ မြက်မုံညင်းအဝါ (*Cyperus iria*)၊ မြက်မုံညင်းဥနက် (*Cyperus rotundus*)၊ မြက်ကွမ်းသီးလေး (*Fimbristylis miliacea*)၊ လိပ်ရင်ဘတ် (*Trianthema portulacastrum*)၊ ဝမ်းဘဲစာမြက် (*Echinochloa colona*)၊ သက်ကယ်မြက် (*Imperata cylindrica*)၊ နှင့် ဟင်းနုနွယ်ဆူးပေါက် (*Amaranthus spinosus*) တို့ဖြစ်ကြပါသည်။

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# Introduction

The classical work by Ghosh (1940) *Insect Pests of Burma* has long been out of print, but still provides a very important source of information. A list of field crop pests was published by Crowe (1988) and a more recent overview by Waterhouse (1993). The latter includes an assessment of the relative importance of the major arthropod pests of agriculture in Myanmar and the 9 other countries comprising Southeast Asia. It is here brought up-to-date and greatly extended for Myanmar in order to provide a sound basis for planning and other purposes. The preferred approach to pest control is now unquestionably Integrated Pest Management. This has led to a steadily increasing interest in biological control for pests that are exotic to the region. Indeed, a significant number of its important pests are exotic to Myanmar. This immediately raises the question whether or not they are promising targets for biological control. Some undoubtedly are. Examples include *Chrysomphalus aonidum*, *Nezara viridula*, *Plutella xylostella*, *Chromolaena odorata*, *Lantana camara* and *Pistia stratiotes*. They are promising targets because they have been controlled in this fashion in other countries where they are exotic. Even when the establishment of adequately specific natural enemies does not reduce the target to non-pest status, they can often make a major contribution to an effective IPM system. Dossiers, and other relevant information, are available on these and other potential target pests (Waterhouse 1993b, 1994, 1998, Waterhouse and Norris 1987, 1989, Waterhouse and Sands 2000). For the first time information is assembled separately on the arthropod pests in the 14 agricultural regions of Myanmar (Fig. 1). These are:

|              |                      |
|--------------|----------------------|
| 1. Ayw       | Ayeyarwadi Division  |
| 2. Bago      | Bago Division        |
| 3. Chin      | Chin State           |
| 4. Kachin    | Kachin State         |
| 5. Kayin     | Kayin State          |
| 6. Kayah     | Kayah State          |
| 7. Mgw       | Magwe Division       |
| 8. Mdy       | Mandalay Division    |
| 9. Mon       | Mon State            |
| 10. Rkk      | Rakhine State        |
| 11. Sag      | Sagaing Division     |
| 12. Shan (N) | Shan State (North)   |
| Shan (S)     | Shan State (South)   |
| 13. Ygn      | Yangon Division      |
| 14. Tny      | Tanintharyi Division |

Compilation of the information follows the general pattern established for the oceanic Pacific (Waterhouse 1997), Southeast Asia (Waterhouse 1993), and especially that for southern China (Li Liying et al. 1977) and Chile (Koch and Waterhouse 2000). The formal, (and the informal) use of earlier drafts of these compilations in the preceding decade has led to a very great increase in classical biological control projects in the Pacific, with a number of successes, and more in prospect.

Experts on the pests in the various crops (listed under contributors on page 7) were asked to supply information on pest distribution and importance on a simple rating

system (Waterhouse 1993):

|     |   |
|-----|---|
| +++ | Very widespread and important   |
| ++  | widespread and important  |
| +   | important locally, or only in some years                                |
| P   | present, but not an important pest: non-pest species are included here. |

A blank indicates that there is no information to indicate whether the species is present on that crop in that region.

Experience has shown that any more complicated system requires more precise information than is generally available. It would also attempt to achieve a degree of accuracy greater than that required for the present purpose. In addition, different experts may not agree on the same rating for some species. In such cases we have generally adopted the highest rating suggested if there is a reasonable basis for doing so.

The exact identity of an insect pest is generally of minor significance for chemical control, since very few insecticides are sufficiently selective for exact identity to influence the outcome. The situation is quite different, however, for classical biological control and often for Integrated Pest Management, where it is highly desirable (a) that it is the pest species that suffers the greatest adverse effect from the introduction of a natural enemy, and (b) that even close relatives and, especially, less closely-related, non-target species are not attacked.

As knowledge of insect taxonomy is progressively refined, generic names have sometimes had to be changed in order to reflect newly-recognised relationships. Also, at times, it is discovered that a species has inadvertently been named more than once. Where this happens, only the earliest name is valid. Confusion thus arises when a particular species is referred to under more than one specific or generic name. If an incorrect name is used it follows that information available in the world literature is not retrieved if it is sought under that name; conversely information filed under the discarded name may not be recognised by those elsewhere now using the modern name.

Instances have been found in the present survey where, in some crops, names still in use are no longer regarded as valid by taxonomists elsewhere. Where we have recognised this, the modern preferred name 'X' has been used and the discarded name 'Y' is listed in Table 15. In this, the reader is referred to the preferred name (X) by 'Y' see 'X' (and 'X' use for 'Y'). If, therefore, a name familiar to you does not appear in the crop tables, its replacement preferred name can probably be determined by reference to Table 15. It should not be assumed, however, that the discarded name is necessarily a synonym of the preferred name, because the discarded name may, for example, be valid but refer to a species occurring somewhere else than on that crop in Myanmar.

It has not been possible to have the identity of each species authenticated by appropriate taxonomists, since this would have involved acquiring specimens and submitting them to experts. Instead, it is only the names that have been checked against recent publications and altered where necessary. Useful lists are Wood (1992), Zhang (1994) and the CABI Arthropod Name Index Database on CD-ROM (1995). Valuable advice has been given by a number of taxonomists associated with the Australian National Insect Collection, CSIRO, Canberra; Hemiptera, Dr M. Carver; Orthoptera, Dr D. Rentz; Thysanoptera, Dr L. A. Mound; Coleoptera, Dr E. C. Zimmerman and T. Weir; Lepidoptera, T. Edwards; Diptera, Dr P. Cranston; and Acari, Dr B. Halliday.

It is inevitable that further name changes will be necessary in the future; and some already made may have escaped our attention.

Where we are aware that generic names have been changed, the name of the original author of the species has been placed in brackets. However, it is probable that some instances of change have been overlooked.

၂။ နိဒါန်း

နှိုင်းယှဉ်စရာမရှိသည့်ဂိုရို ၁၉၄၀(Ghosh 1940) ၏ “ မြန်မာနိုင်ငံအင်းဆက်ဖျက်ပိုး”စာအုပ်သည် နှစ်အတန်ကြာ ထပ်မံ ထုတ်ဝေပုံနှိပ်ခဲ့ခြင်းမရှိခဲ့ပေမဲ့ ယူအချိန်ထိ အရေးကြီးသည့် မှတ်တမ်းအဖြစ်ပုံပိုးထောက်ကူလျက် ရှိပါသည်။ ကရိုး ၁၉၈၈ (Crowe 1988) သည် သီးနှံဖျက်ပိုးစာရင်းကို ပြုစုထုတ်ဝေခဲ့ပြီး ပိုမိုခေတ်မှီသည့်ကောက်နှုတ်ချက်ကို ဝါးတားဟော့စ် ၁၉၉၃ (Waterhouse 1993) မှ တင်ပြပြုစုခဲ့ပါသည်။ ဖော်ပြပါပြုစုမှုသည် အရှေ့တောင်အာရှနိုင်ငံ (၉) နိုင်ငံနှင့်တကွ မြန်မာနိုင်ငံစိုက်ပျိုးရေးကဏ္ဍတွင် အရေးကြီးသည့် အဓိကအင်းဆက်ဖျက်ပိုးများကို ဆန်းစစ်ပြုစုထားပါသည်။ ယူဤစာအုပ်ဖြင့်ထပ်မံ၍ ပြောင်းလဲကျရောက် လျက်ရှိသည့် ဖျက်ပိုးအခြေအနေများအပေါ်အခြေခံ၍ လုပ်ငန်းများကို ကြိုတင်စီမံမှုများ ပြုလုပ်နိုင်ရန် ပိုမိုကျယ် ပြန့် စွာပြုစုထားပါသည်။

အင်းဆက်ဖျက်ပိုးများကို ဘက်စုံကာကွယ်ရေးနည်းစနစ်ဖြင့် နှိမ်နင်းခြင်းသည် ကမ္ဘာပေါ်တွင် အနှစ်သက်ဆုံးဖြစ်နေကြောင်း မေးစရာမလိုတော့ပါ။ ထို့ကြောင့် အခြားနယ်မြေမှဝင်ရောက်လာသည့် ဖျက်ပိုးများအတွက် ဇီဝနည်းဖြင့်ကာကွယ်ခြင်းကို သိပ္ပံပညာရှင်များ တဖြည်းဖြည်း တိုးတက် စိတ်ဝင်စား လာကြပါသည်။

မြန်မာနိုင်ငံတွင်လည်း အရေးကြီးဖျက်ပိုးအချို့သည် အခြားနယ်မြေဒေသမှ ဝင်ရောက်၍ ဖျက်ပိုးအဆင့် ရောက်ရှိနေခြင်း ဖြစ်ပါသည်။ သို့ပါ၍ ဖော်ပြပါအရေးကြီးဖျက်ပိုးများကို ဇီဝနည်းဖြင့်အောင်မြင်စွာ နှိမ်နင်းနိုင်ခြင်းရှိ၊ မရှိကို စုံစမ်းလေ့လာရန် လိုအပ်နေပြီ ဖြစ်ပါသည်။ အခြားတိုင်းပြည်များတွင် ပြင်ပမှဝင်ရောက်လာပြီး ဇီဝနည်းဖြင့် အောင်မြင်စွာထိန်းသိမ်းကာကွယ်နိုင်သည့် အင်းဆက်ဖျက်ပိုးများမှာ သစ်သီးပင်များတွင် ကျရောက်သည့် ခရမ်းရောင်အကြေးပိုး(*Chrysomphalus aonidum*)၊ စုပိစားဂျိုပိုးစိမ်း (*Nezara viridula*)၊ ဂေါ်ဖီစိန်ကွက်ဖလံ (*Plutella xylostella*)၊ *Chromolaena odorata*, *Lantana camara* နှင့် *Pistia stratiotes* တို့ဖြစ်ကြပါသည်။

သီးနှံဖျက်ပိုး တစ်ခုအတွက် နယ်မြေတစ်ခုတွင် အတည်တကျနေရာယူထားသည့် သဘာဝရန်သူပိုးမျိုးစိပ်တစ်ခုသည် ယင်းဖျက်ပိုးကို ဖျက်ပိုးမဟုတ်သည့်အဆင့်သို့ မလျော့ချနိုင်သော်လည်း ဘက်စုံဖျက်ပိုးကာကွယ်ရေးစနစ်တစ်ခုအတွက် အဓိက အထောက်အကူပြုနိုင်မည်ဖြစ်ပါသည်။ ဇီဝနည်းဖြင့် ထိန်းသိမ်းကာကွယ်နိုင်ရန် အလားအလာရှိသည့် ဖျက်ပိုးများအကြောင်း ဆက်နွယ်သည့်မှတ်တမ်းများ ရရှိနေပြီဖြစ်ပါသည်။(Water house 1993 b, 1994,1998, Waterhouse and Sands 2000)။ ထို့ကြောင့် မြန်မာနိုင်ငံတွင်လည်း သီးနှံအလိုက် အင်းဆက်ဖျက်ပိုးများ၏ အရေးပါပုံအဆင့်များ သတ်မှတ် ပြုစုလျက်၊ အခြားတိုင်းပြည်များနှင့် တွေ့ရှိချက်များ နှိုင်းယှဉ်ကာ ရေရှည်တည်တံ့ခိုင်မြဲမည့် ကာကွယ်ရေးနည်း စနစ်များကိုတည်ထောင်ဖော်ထုတ် နိုင်မည်ဖြစ်ပါသည်။ ထို့အပြင် မြန်မာပြည်၏ တိုင်း/ပြည်နယ် (၁၄)ခု၊ (ပုံ-၁) တွင်ပျံ့နှံ့ကျရောက်

လျက်ရှိသည့် အင်းဆက်ဖျက်ပိုးများ၏ စာရင်းကို ပထမဦးဆုံး ဤစာအုပ်တွင်ပြုစု၍ သီးခြား ဖော်ပြထားပါသည်။

တိုင်း/ပြည်နယ် (၁၄) ခုကို အောက်ပါအတိုင်းအတိုကောက် ခွဲခြားသတ်မှတ်ထားပါသည်။

|                |   |                             |
|----------------|---|-----------------------------|
| ၁။ Ayw         | = | ဧရာဝတီတိုင်း                |
| ၂။ Bago        | = | ပဲခူးတိုင်း                 |
| ၃။ Chin        | = | ချင်းပြည်နယ်                |
| ၄။ Kachin      | = | ကချင်ပြည်နယ်                |
| ၅။ Kayin       | = | ကရင်ပြည်နယ်                 |
| ၆။ Kayah       | = | ကယားပြည်နယ်                 |
| ၇။ Mgw         | = | မကွေးတိုင်း                 |
| ၈။ Mdy         | = | မန္တလေးတိုင်း               |
| ၉။ Mon         | = | မွန်ပြည်နယ်                 |
| ၁၀။ Rkk        | = | ရခိုင်ပြည်နယ်               |
| ၁၁။ Sag        | = | စစ်ကိုင်းတိုင်း             |
| ၁၂။ Shan ( N ) | = | ရှမ်းပြည်နယ် (မြောက်ပိုင်း) |
| Shan ( S )     | = | ရှမ်းပြည်နယ် (တောင်ပိုင်း)  |
| ၁၃။ Ygn        | = | ရန်ကုန်တိုင်း               |
| ၁၄။ Tny        | = | တနင်္သာရီတိုင်း             |

အထက်ဖော်ပြပါမှတ်တမ်းများပြုစုသည့်ပုံစံသည် ပစိဖိတ်သမုဒ္ဒရာဒေသ (Waterhouse 1997)၊ အရှေ့ တောင်အာရှဒေသ (Waterhouse 1993) နှင့် အထူးသဖြင့် တရုတ်တောင်ပိုင်းဒေသ (Li Liying et al 1997) နှင့် ချီလီဒေသ (Koch and Waterhouse 2000) အတိုင်းပြုစုထားပါသည်။ ပြည်ပမှ မှတ်တမ်းများ ပြုစုခဲ့ခြင်းကြောင့် ဖြစ်ပေါ်လာသည့် အကျိုးဆက်များမှာ ပစိဖိတ်ဒေသတွင် ဇီဝပိုးမွှားကာကွယ်ရေးစီမံကိန်းများ အကောင်အထည်များဖော်နိုင်၍ ဖျက်ပိုးကာကွယ်ရေးလုပ်ငန်း အောင်မြင်မှုများရှိခြင်းနှင့် အောင်မြင်မှု အလား အလာများ ထပ်မံရှိလာနိုင်ခြင်းတို့ ဖြစ်ပါသည်။

တိုင်း/ပြည်နယ်များမှ ပါဝင်ပံ့ပိုးကူညီသူများသည် သီးနှံအလိုက်ဖျက်ပိုးကျရောက်မှုနှင့် ပျံ့နှံ့မှုကို အောက်ပါ လွယ်ကူသော အမှတ်ပေးစနစ်ဖြင့် မှတ်တမ်းပြုစုခဲ့ပါသည်။

- + + +            - အလွန်ကျယ်ပြန့်ပြန့် ပျံ့နှံ့ကျရောက်၊ အရေးပါဖျက်ပိုး
- + +             - ကျယ်ပြန့်စွာ ပျံ့နှံ့ကျရောက်၊ အရေးပါဖျက်ပိုး
- +                - ဒေသအလိုက် အရေးပါဖျက်ပိုး၊ တခါတရံ အချို့နှစ်များတွင်သာ အရေးပါ။

P - ကျရောက်သော်လည်း အရေးပါဖျက်ပိုးမဟုတ်။ ကွက်လပ်ဖြစ်နေပါက ဖော်ပြပါဒေသအတွက် ဖျက်ပိုးမျိုးစိပ် ကျ/မကျ မှတ်တမ်းမရှိပါဟုဖော်ညွှန်းပါသည်။

အတွေ့အကြုံများအရ အထက်ဖော်ပြပါအမှတ်ပေးစနစ်ထက် ခက်ခဲသောစနစ်ကိုအသုံးပြုပါက ပိုမိုတိကျသော သတင်းမှတ်တမ်းများကို လိုအပ်မည်ဖြစ်ပါသည်။ ရည်ရွယ်ထားသည်ထက် ပိုမိုတိကျမှုများကိုလည်း ဖော်ထုတ်ရမည့်အပြင် ပညာရှင်များသည် မျိုးစိပ်တစ်ခုအတွက် အမှတ်ပေးမှုအဆင့်လည်းကွာခြားနေမည် ဖြစ်ပါသည်။ ဤအခြေအနေများဖြစ်ပေါ်ခဲ့လျှင် ယေဘုယျအားဖြင့် ပေးသင့်သည့် အမြင့်ဆုံးအမှတ်အဆင့်ကို သတ်မှတ်ထားရမည်ဖြစ်ပါသည်။

ခါတုပေဒနည်းဖြင့် ပိုးမွှားကာကွယ်ရေးအတွက် အင်းဆက်မျိုးစိပ် အတိအကျသိရန်မလိုပါ။ အဘယ်ကြောင့်ဆိုသော် မျိုးစိပ်တစ်ခုတည်းကို သီးခြားနှိမ်နင်းနိုင်သည့် ပိုးသတ်ဆေးများရှားပါးမှုကြောင့် ဖြစ်ပါသည်။ သို့သော်ဇီဝနည်းနှင့် ဘက်စုံပိုးမွှားကာကွယ်ရေးနည်းလမ်းများတွင်မူ သဘာဝရန်သူပိုးများ တင်သွင်းလွှတ်ပေးခြင်းဖြင့် နှိမ်နင်းလိုသည့်ဖျက်ပိုးမျိုးစိပ်များ အကျိုးဆုတ်ယုတ်မှုအများဆုံးဖြစ်စေရန် လိုအပ်ခြင်းနှင့် အခြားပစ်မှတ်မဟုတ်သည့် ဖျက်ပိုးများမထိခိုက်စေခြင်းအတွက် နှိမ်နင်းလိုသည့် အင်းဆက်မျိုးစိပ်ကို သိရှိခွဲခြားနိုင်ရန် အထူးလိုအပ်ပါသည်။

အင်းဆက်မျိုးစိပ်များကို ခွဲခြားသည့်အတတ်ပညာများ တိုးတက်မြင့်မားလာသည်နှင့်အမျှ အသစ်ပေါ်လွင်လာသည့် ဆက်စပ်မှုများကို ဖော်ညွှန်းရန် အင်းဆက်မျိုးစုအမည်များကို ပြောင်းလဲရန် လိုအပ်လာပါသည်။ တခါတရံလည်း အင်းဆက်မျိုးစိပ် တစ်စိပ်ကို တစ်ကြိမ်မက အမည်ကင်ပွန်းတပ်ခဲ့သည်ကို လေ့လာတွေ့ရှိရပါသည်။ ဤကဲ့သို့ အမည်ပေးမှုများဖြစ်ပေါ်ပါက ဦးဆုံးပေးထားသည့် အမည်သာလျှင် တရားဝင်ပါသည်။ မျိုးစိပ်တစ်စိပ်ကို အမည်နှစ်မျိုးဖြင့်ဖော်ညွှန်းပါက ရှုပ်ထွေးမှုများ ပေါ်ပေါက်လာပါသည်။ မျိုးစိပ်၏ အကြောင်းအရာကို မှားယွင်းသောအမည်ဖြင့် ကမ္ဘာ့စာပေလောကတွင် ရှာဖွေတွေ့ရှိမည် မဟုတ်ပါ။ ထို့အပြင် အမည်ဟောင်းဖြင့်မှတ်တမ်းတင်ထားသည့် အကြောင်းအရာများကို အမည်သစ်သုံးသူများမှ ရှာဖွေတွေ့ရှိမည် မဟုတ်ပါ။

ဤစာအုပ်ကိုပြုစုရေးသားရာတွင် အချို့သီးနှံတွင်ကျရောက်သော ဖျက်ပိုးအမည်များကို အခြားပြည်ပမှ ပညာရှင်များ အသုံးမပြုတော့သည်ကိုတွေ့ရှိရပါသည်။ ဤအချက်ကိုပြုပြင်ရန် အများမှအသုံး ပြုနေသော ဖျက်ပိုးအမည် 'X' ကို အသုံးပြုထား၍၊ အပြောင်းခံထားသည့်အမည်ဟောင်း 'Y' ကို ဇယား(၁၅) တွင် စာရင်း ပြုစုထားပါသည်။ ဤစာရင်းတွင် အမည်ဟောင်း 'Y' အစား 'X' ကို သုံးပါဟုညွှန်းထားပါသည်။ ထို့ကြောင့် မိမိနှင့်ယဉ်ပါးမှုမရှိသော သီးနှံဖျက်ပိုးအမည်များကို ဇယားများတွင် မတွေ့ရှိပါက ဇယား (၁၅) တွင် ရှာဖွေနိုင်ပါသည်။ သို့သော် အသုံးမပြုတော့သည့်အမည်သည် ဆင်တူအမည်မဟုတ်ကြောင်း သတိမူရပါမည်။ အဘယ်ကြောင့်ဆိုသော် မြန်မာနိုင်ငံတွင် တရားဝင်အမည်ဟောင်းဖြင့် အခြားသီးနှံပေါ်တွင်ကျရောက်လျက် ရှိနိုင်ခြင်းကြောင့် ဖြစ်ပါသည်။

ဤစာအုပ်တွင် သီးနှံအလိုက်ကျရောက်သည့် ဖျက်ပိုးများကို ပညာရှင်များမှ တစ်ကောင်ချင်း ခွဲခြားသတ်မှတ် နိုင်ခြင်း မရှိခဲ့ပါ။ ယခင် ပုံနှိပ်ထုတ်ဝေမှု မှတ်တမ်းများအပေါ် အခြေခံခွဲခြား၍ လိုအပ်သည့် နေရာများတွင် ပြုပြင်မှုများ ဆောင်ရွက်ခဲ့ပါသည်။ အသုံးပြုခဲ့သည့် မှတ်တမ်းများမှာ - Woods (1992), Zhang (1994) and CABI Arthropod Name Index Database on CD- Rom (1995) တို့ဖြစ်ပါသည်။ တန်ဖိုးမဖြတ်နိုင်သည့် အကြံဉာဏ်များကို Canberra , CSIRO မှ အင်းဆက်စုဆောင်းရေးပညာရှင်များ၊ Hemiptera : Dr M Carver, Orthoptera : Dr D Rentz , Thysanoptera : Dr L . A . Mound , Coleoptera : Dr E . C . Zimmerman and T . Weir , Lepidoptera : T . Edwards , Diptera : Dr . P. Cranston and Acari : Dr . B . Halliday မှ အထောက်အကူ ပြုခဲ့ ပါသည်။

မလွဲမသွေ ရှေ့လာမည့်အနာဂါတ်တွင် အမည်များထပ်မံပြောင်းလဲလာမည်ဖြစ်၍ အချို့အမည် ပြောင်းလဲပြီးသည်များကိုလည်း ကျွန်ုပ်တို့ မသိလိုက်သည်လည်းရှိကောင်း ရှိပါလိမ့်မည်။ အမည်ပြောင်း မျိုးစု များကို သိရှိရသည့်အခြေအနေမျိုးတွင် မူရင်းအမည်ပေးထားသည့် ပုဂ္ဂိုလ်၏အမည်ကို ကွင်းစကွင်းပိတ်ဖြင့် ဖော်ပြ ထားပါသည်။ သို့သော်လည်း ပြောင်းလဲမှုတချို့ ကျန်ကောင်းကျန်ပါလိမ့်မည်။



Figure 1. States and Divisions of Myanmar

Table 1. Arthropod pests of agricultural crops

| Pest  | Order       | Family        | Principal crops attacked   | See tables |
|---|-------------|---------------|--|------------|
| <i>Abidama producta</i> (Walker)                | Hemiptera   | Cercopidae    | sugarcane  | 5          |
| <i>Acanthoscelides obtectus</i> (Say)           | Coleoptera  | Bruchidae     | pea, bean  | 3          |
| <i>Achaea janata</i> (Linnaeus)                 | Lepidoptera | Noctuidae     | castor   | 4          |
| <i>Acherontia styx</i> (Westwood)               | Lepidoptera | Sphingidae    | sesame, egg plant  | 4,9        |
| <i>Acheta</i> sp.                               | Orthoptera  | Gryllidae     | chickpea, pigeonpea, pea, soybean.   | 3          |
| <i>Adoretus birmanus</i> Arrow                  | Coleoptera  | Scarabaeidae  | groundnut, maize, sorghum.   | 7          |
| <i>Agrius citri</i> Thery                       | Coleoptera  | Buprestidae   | citrus   | 11         |
| <i>Agrotis ipsilon</i> (Hufnagel)               | Lepidoptera | Noctuidae     | maize, sorghum, potato, tobacco, chickpea, cotton, bean, green & blackgram, cabbage, pea, cauliflower. | 3,6,7,8,9  |
| <i>Agrotis segetum</i> (Denis and Schiffmuller) | Lepidoptera | Noctuidae     | maize, sorghum, cabbage, cauliflower, tobacco,   | 7,8,9      |
| <i>Alcidodes affaber</i> (Aurivillius)          | Coleoptera  | Curculionidae | mustard, potato.<br>cotton   | 6          |
| <i>Alcidodes frenatus</i> (Faust)               | Coleoptera  | Curculionidae | mango  | 11         |
| <i>Aleurocanthus woglumi</i> Ashby              | Hemiptera   | Aleyrodidae   | citrus   | 11         |
| <i>Aleurodicus destructor</i> Mackie            | Hemiptera   | Aleyrodidae   | coconut  | 4          |
| <i>Aleurodicus dispersus</i> Russell            | Hemiptera   | Aleyrodidae   | guava, papaya.   | 11         |
| <i>Aleurolobus barodensis</i> (Maskell)         | Hemiptera   | Aleyrodidae   | sugarcane  | 5          |
| <i>Alissonotum impressicole</i> Arrow           | Coleoptera  | Scarabaeidae  | sugarcane  | 5          |
| <i>Amplipterus panopus</i> (Cramer)             | Lepidoptera | Sphingidae    | mango, durian.   | 11         |
| <i>Amrasca devastans</i> (Distant)              | Hemiptera   | Cicadellidae  | cotton   | 6          |
| <i>Amrasca</i> sp.                              | Hemiptera   | Cicadellidae  | maize, egg plant.  | 7,9        |
| <i>Amritodus atkinsoni</i> (Lethierry)          | Hemiptera   | Cicadellidae  | mango  | 11         |
| <i>Amsacta albistriga</i> (Walker)              | Lepidoptera | Arctiidae     | maize, sorghum   | 7          |
| <i>Amsacta lactinea</i> (Cramer)                | Lepidoptera | Arctiidae     | groundnut  | 4          |
| <i>Anomala antiqua</i> (Gyllenhal)              | Coleoptera  | Scarabaeidae  | sugarcane, groundnut, sesame.  | 4,5        |
| <i>Anomis flava</i> (Fabricius)                 | Lepidoptera | Noctuidae     | cotton   | 6          |
| <i>Anoplophora versteegii</i> (Ritsema)         | Coleoptera  | Cerambycidae  | citrus   | 11         |
| <i>Antigastra catalaunalis</i> (Duponchel)      | Lepidoptera | Pyralidae     | sesame   | 4          |
| <i>Aonidiella aurantii</i> (Maskell)            | Hemiptera   | Diaspididae   | citrus   | 11         |
| <i>Aphis craccivora</i> Koch                    | Hemiptera   | Aphididae     | groundnut, pigeonpea, soybean, pea.  | 3,4        |
| <i>Aphis fabae</i> (Scopoli)                    | Hemiptera   | Aphididae     | pigeonpea, soybean, green & blackgram, bean.   | 3          |
| <i>Aphis gossypii</i> Glover                    | Hemiptera   | Aphididae     | cotton, guava, papaya, gourd, pumpkin, potato, cucumber, egg plant                                     | 6,9,10,11  |

Table 1. (cont'd) Arthropod pests of agricultural crops

| Pest                                       | Order        | Family         | Principal crops attacked   | See tables |
|--|--------------|----------------|--|------------|
| <i>Apomecyna histrio</i> (Fabricius)       | Coleoptera   | Cerambycidae   | gourd, pumpkin, cucumber, melon.                                     | 10         |
| <i>Apriona germari</i> (Hope)              | Coleoptera   | Cerambycidae   | mulberry, durian   | 11         |
| <i>Aproaerema modicella</i> (Deventer)     | Lepidoptera  | Gelechiidae    | groundnut, pigeonpea, soybean, bean.                                 | 3,4        |
| <i>Archips micaceanus</i> (Walker)         | Lepidoptera  | Tortricidae    | groundnut, soybean, bean.  | 3,4        |
| <i>Ariadne merione</i> (Cramer)            | Lepidoptera  | Nymphalidae    | castor   | 4          |
| <i>Aristobia approximata</i> (Thomson)     | Coleoptera   | Cerambycidae   | mango  | 11         |
| <i>Artona catoxantha</i> (Hampson)         | Lepidoptera  | Zygaenidae     | coconut, oil palm  | 4          |
| <i>Aspidiotus destructor</i> Signoret      | Hemiptera    | Diaspididae    | coconut, oil palm  | 4          |
| <i>Aspidomorpha indica</i> Boheman         | Coleoptera   | Chrysomelidae  | sweet potato   | 9          |
| <i>Athalia lugens</i> (Klug)               | Hymenoptera  | Tenthredinidae | cabbage, cauliflower, mustard.                                       | 8          |
| <i>Atherigona soccata</i> Rondani          | Diptera      | Muscidae       | sorghum  | 7          |
| <i>Atractomorpha crenulata</i> (Fabricius) | Orthoptera   | Pyrgomorphidae | tobacco  | 9          |
| <i>Attacus atlas</i> (Linnaeus)            | Lepidoptera  | Saturniidae    | mango, avocado, custard apple.                                       | 11         |
| <i>Aulacaspis tubercularis</i> Newstead    | Hemiptera    | Diaspididae    | mango  | 11         |
| <i>Aulacophora foveicollis</i> (Lucas)     | Coleoptera   | Chrysomelidae  | gourd, pumpkin, bitter gourd, cucumber.                              | 10         |
| <i>Aularches miliaris</i> (Linnaeus)       | Orthoptera   | Pyrgomorphidae | oil palm, banana.  | 4,11       |
| <i>Bactrocera cucurbitae</i> (Coquillett)  | Diptera      | Tephritidae    | musk melon, gourd, pumpkin, bitter gourd, capsicum, melon, cucumber. | 9,10,11    |
| <i>Bactrocera dorsalis</i> (Hendel)        | Diptera      | Tephritidae    | egg plant, tomato, mango, citrus, guava, cashew.                     | 9,11       |
| <i>Bagrada hilaris</i> (Burmeister)        | Hemiptera    | Pentatomidae   | potato, egg plant, cabbage, cauliflower, mustard.                    | 8,9        |
| <i>Batocera rufomaculata</i> (De Geer)     | Coleoptera   | Cerambycidae   | mango, cashew.   | 11         |
| <i>Bemisia</i> sp.                         | Hemiptera    | Aleyrodidae    | mango, guava, papaya.  | 11         |
| <i>Bemisia tabaci</i> (Gennadius)          | Hemiptera    | Aleyrodidae    | cotton, potato, tobacco, castor.                                     | 4,6,9      |
| <i>Brachytrupes</i> sp.                    | Orthoptera   | Gryllidae      | oil palm   | 4          |
| <i>Brevennia rehi</i> (Lindinger)          | Hemiptera    | Pseudococcidae | rice   | 2          |
| <i>Brevicoryne brassicae</i> (Linnaeus)    | Hemiptera    | Aphididae      | cabbage, cauliflower   | 8          |
| <i>Caliothrips indicus</i> (Bagnall)       | Thysanoptera | Thripidae      | groundnut, legumes.  | 4          |
| <i>Callitettix versicolor</i> (Fabricius)  | Hemiptera    | Cercopidae     | sugarcane  | 5          |
| <i>Callosobruchus</i> sp.                  | Coleoptera   | Bruchidae      | pea, soybean, bean.  | 3          |
| <i>Carpomyia vesuviana</i> Costa           | Diptera      | Tephritidae    | jujube   | 11         |
| <i>Ceratovacuna lanigera</i> (Zehntner)    | Hemiptera    | Aphididae      | sugarcane  | 5          |

Table 1. (cont'd) Arthropod pests of agricultural crops

| Pest                                     | Order       | Family          | Principal crops attacked                       | See tables |
|--|-------------|-----------------|--|------------|
| <i>Ceroplastes ceriferus</i> (Fabricius) | Hemiptera   | Coccidae        | mulberry                                       | 11         |
| <i>Chilo auricilius</i> (Dudgeon)        | Lepidoptera | Pyralidae       | sugarcane                                      | 5          |
| <i>Chilo infuscatellus</i> Snellen       | Lepidoptera | Pyralidae       | sugarcane                                      | 5          |
| <i>Chilo polychrysus</i> (Meyrick)       | Lepidoptera | Pyralidae       | rice   | 2          |
| <i>Chilo</i> spp.                        | Lepidoptera | Pyralidae       | sorghum  | 7          |
| <i>Chilo suppressalis</i> (Walker)       | Lepidoptera | Pyralidae       | rice, maize, sugarcane.                        | 2,5,7      |
| <i>Chilo tumidicostalis</i> (Hampson)    | Lepidoptera | Pyralidae       | sugarcane                                      | 5          |
| <i>Chrysomphalus aonidum</i> (Linnaeus)  | Hemiptera   | Diaspididae     | coconut, citrus, guava, papaya.                | 4,11       |
| <i>Cnaphalocrocis medinalis</i> (Guenee) | Lepidoptera | Pyralidae       | rice   | 2          |
| <i>Condica capensis</i> Guenee           | Lepidoptera | Noctuidae       | sunflower                                      | 4          |
| <i>Coptotermes curvignathus</i> Holmgren | Isoptera    | Rhinotermitidae | groundnut, coconut, oil palm.                  | 4          |
| <i>Coridius fuscus</i> (Westwood)        | Hemiptera   | Dinidoridae     | pumpkin  | 10         |
| <i>Cosmopolites sordidus</i> (Germar)    | Coleoptera  | Curculionidae   | banana   | 11         |
| <i>Cricula trifenestrata</i> (Helfer)    | Lepidoptera | Saturniidae     | mango, guava, avocado.                         | 11         |
| <i>Crocidolomia pavonana</i> (Fabricius) | Lepidoptera | Pyralidae       | cabbage, cauliflower, mustard.                 | 8          |
| <i>Cylas formicarius</i> (Fabricius)     | Coleoptera  | Apionidae       | sweet potato                                   | 9          |
| <i>Cyrtopeltis tenuis</i> (Reuter)       | Hemiptera   | Miridae         | tomato, tobacco.                               | 9          |
| <i>Deporaus marginatus</i> (Pascoe)      | Coleoptera  | Curculionidae   | mango  | 11         |
| <i>Diaphania indica</i> (Saunders)       | Lepidoptera | Pyralidae       | pumpkin  | 10         |
| <i>Diaphania pyloalis</i> (Walker)       | Lepidoptera | Pyralidae       | citrus   | 11         |
| <i>Diaphorina citri</i> Kuwayama         | Hemiptera   | Psyllidae       | citrus   | 11         |
| <i>Dicladispa armigera</i> (Olivier)     | Coleoptera  | Chrysomelidae   | rice   | 2          |
| <i>Dorylus orientalis</i> Westwood       | Hymenoptera | Formicidae      | cabbage, cauliflower.                          | 8          |
| <i>Dysdercus cingulatus</i> (Fabricius)  | Hemiptera   | Pyrrhocoridae   | cotton   | 6          |
| <i>Earias insulana</i> (Boisduval)       | Lepidoptera | Noctuidae       | cotton   | 6          |
| <i>Earias vittella</i> (Fabricius)       | Lepidoptera | Noctuidae       | cotton   | 6          |
| <i>Elasmolomus sordidus</i> (Fabricius)  | Hemiptera   | Lygaeidae       | sesame   | 4          |
| <i>Empoasca flavescens</i> (Fabricius)   | Hemiptera   | Cicadellidae    | pigeonpea, egg plant.                          | 3,9        |
| <i>Empoasca</i> sp.                      | Hemiptera   | Cicadellidae    | castor, groundnut, sunflower, safflower.       | 4          |
| <i>Epepeotes uncinatus</i> Gahan         | Coleoptera  | Cerambycidae    | mulberry                                       | 11         |
| <i>Epilachna indica</i> Mulsant          | Coleoptera  | Coccinellidae   | gourd, pumpkin, bitter melon, cucumber, melon. | 10         |

Table 1. (cont'd) Arthropod pests of agricultural crops

| Pest   | Order        | Family         | Principal crops attacked  | See tables   |
|--|--------------|----------------|---|--------------|
| <i>Epilachna 28-punctata</i> Mulsant             | Coleoptera   | Coccinellidae  | gourd, pumpkin, bitter gourd, cucumber, melon.  | 10           |
| <i>Epilachna pusillanima</i> Mulsant             | Coleoptera   | Coccinellidae  | potato  | 9            |
| <i>Epilachna</i> sp.                             | Coleoptera   | Coccinellidae  | pea, soybean.   | 3            |
| <i>Epilachna vigintioctopunctata</i> (Fabricius) | Coleoptera   | Coccinellidae  | egg plant, potato.  | 9            |
| <i>Erionota thrax</i> (Linnaeus)                 | Lepidoptera  | Hesperiidae    | banana  | 11           |
| <i>Etiella zinckenella</i> (Treitschke)          | Lepidoptera  | Pyralidae      | pigeonpea, bean.  | 3            |
| <i>Eublemma olivacea</i> (Walker)                | Lepidoptera  | Noctuidae      | egg plant   | 9            |
| <i>Euchrysops cnejus</i> (Fabricius)             | Lepidoptera  | Lycaenidae     | pigeonpea, bean.  | 3            |
| <i>Eudocima fullonia</i> (Clerck)                | Lepidoptera  | Noctuidae      | citrus, grape.  | 11           |
| <i>Euproctis fraterna</i> (Moore)                | Lepidoptera  | Lymantriidae   | mango, citrus, guava, cashew.   | 11           |
| <i>Eurydema pulchrum</i> (Westwood)              | Hemiptera    | Pentatomidae   | cabbage, cauliflower.   | 8            |
| <i>Euscyrtus concinnus</i> (de Hann)             | Orthoptera   | Gryllidae      | rice  | 2            |
| <i>Exelastis atomosa</i> (Walsingham)            | Lepidoptera  | Pterophoridae  | pigeonpea, bean.  | 3            |
| <i>Eysarcoris guttiger</i> (Thunberg)            | Hemiptera    | Pentatomidae   | sesame, mango.  | 4,11         |
| <i>Ferrisia virgata</i> (Cockerell)              | Hemiptera    | Pseudococcidae | mango, citrus, papaya, guava, custard apple.  | 11           |
| <i>Frankliniella</i> sp.                         | Thysanoptera | Thripidae      | maize   | 7            |
| <i>Gryllotalpa orientalis</i> Burmeister         | Orthoptera   | Gryllotalpidae | sugarcane   | 5            |
| <i>Helicoverpa armigera</i> (Hubner)             | Lepidoptera  | Noctuidae      | cotton, chickpea, pigeonpea, pea, bean, potato, tomato, tobacco, groundnut, cabbage, maize, cauliflower, sesame, sunflower. | 3,4,6,7,8,9  |
| <i>Helicoverpa assulta</i> (Guenee)              | Lepidoptera  | Noctuidae      | tobacco   | 9            |
| <i>Hellula undalis</i> (Fabricius)               | Lepidoptera  | Pyralidae      | cabbage, cauliflower, mustard.  | 8            |
| <i>Heteroderes lenis</i> Candeze                 | Coleoptera   | Elateridae     | sugarcane, groundnut.   | 4,5          |
| <i>Hippotion celerio</i> (Linnaeus)              | Lepidoptera  | Sphingidae     | grape   | 11           |
| <i>Holotrichia</i> sp.                           | Coleoptera   | Scrabaeidae    | groundnut, sugarcane.   | 4,5          |
| <i>Hypolixus pica</i> (Fabricius)                | Coleoptera   | Curculionidae  | oil seed crops  | 4            |
| <i>Hypomeces squamosus</i> (Fabricius)           | Coleoptera   | Curculionidae  | sugarcane, tobacco, cotton, rice, maize, mango, citrus, grape.  | 2,5,6,7,9,11 |
| <i>Idioscopus clypealis</i> (Lethierry)          | Hemiptera    | Cicadellidae   | mango   | 11           |
| <i>Idioscopus nigroclypeatus</i> (Melichar)      | Hemiptera    | Cicadellidae   | mango   | 11           |
| <i>Indarbela quadrinotata</i> (Walker)           | Lepidoptera  | Cossidae       | mango, citrus, cashew.  | 11           |
| <i>Kerria lacca</i> (Kerr)                       | Hemiptera    | Kerriidae      | mango, citrus, guava, cashew, apple, tamarind.  | 11           |
| <i>Kiritshenkella sacchari</i> (Green)           | Hemiptera    | Pseudococcidae | sugarcane   | 5            |

Table 1. (cont'd) Arthropod pests of agricultural crops

| Pest                                     | Order       | Family        | Principal crops attacked  | See tables |
|--|-------------|---------------|---|------------|
| <i>Lampides boeticus</i> (Linnaeus)      | Lepidoptera | Lycaenidae    | pigeonpea, pea.   | 3          |
| <i>Leptocoris acuta</i> (Thunberg)       | Hemiptera   | Alydidae      | rice  | 2          |
| <i>Leptocoris oratorius</i> (Fabricius)  | Hemiptera   | Alydidae      | rice  | 2          |
| <i>Leucinodes orbonalis</i> (Guenee)     | Lepidoptera | Pyralidae     | egg plant   | 9          |
| <i>Lipaphis erysimi</i> (Kaltenbach)     | Hymenoptera | Aphididae     | cabbage, cauliflower.   | 8          |
| <i>Macrotermes</i> spp.                  | Isoptera    | Termitidae    | maize, sorghum, sugarcane.  | 5,7        |
| <i>Marasmia trapezalis</i> (Guenee)      | Lepidoptera | Pyralidae     | sorghum   | 7          |
| <i>Maruca vitrata</i> (Fabricius)        | Lepidoptera | Pyralidae     | pigeonpea   | 3          |
| <i>Medythia suturalis</i> (Motschulsky)  | Coleoptera  | Chrysomelidae | pea, green & blackgram, bean.   | 3          |
| <i>Melanagromyza obtusa</i> (Malloch)    | Diptera     | Agromyzidae   | pigeonpea   | 3          |
| <i>Melanaphis sacchari</i> (Zehntner)    | Hemiptera   | Aphididae     | sorghum   | 7          |
| <i>Melanitis ismene</i> (Cramer)         | Lepidoptera | Nymphalidae   | rice  | 2          |
| <i>Mylabris pustulata</i> (Thunberg)     | Coleoptera  | Meloidae      | pigeonpea, green & blackgram.   | 3          |
| <i>Mythimna separata</i> (Walker)        | Lepidoptera | Noctuidae     | rice, maize, sorghum.   | 2,7        |
| <i>Mythimna</i> sp.                      | Lepidoptera | Noctuidae     | maize   | 7          |
| <i>Myzus persicae</i> (Sulzer)           | Hemiptera   | Aphididae     | apple, potato, tomato, tobacco.                                       | 9,11       |
| <i>Nephotettix virescens</i> (Distant)   | Hemiptera   | Cicadellidae  | rice  | 2          |
| <i>Nezara viridula</i> (Linnaeus)        | Hemiptera   | Pentatomidae  | rice, pea, bean, cotton, potato, maize, sorghum, capsicum.            | 2,3,6,7,9  |
| <i>Nilaparvata lugens</i> (Stal)         | Hemiptera   | Delphacidae   | rice  | 2          |
| <i>Odoiporus longicollis</i> (Olivier)   | Coleoptera  | Curculionidae | banana  | 11         |
| <i>Odontotermes</i> sp.                  | Isoptera    | Termitidae    | groundnut, sesame, coconut, oil palm, pea, bean, pigeonpea, chickpea. | 3,4        |
| <i>Oecophylla smaragdina</i> (Fabricius) | Hymenoptera | Formicidae    | mango, citrus, cashew, tamarind.                                      | 11         |
| <i>Omiodes indicata</i> (Fabricius)      | Lepidoptera | Pyralidae     | green & blackgram   | 3          |
| <i>Ophiomyia phaseoli</i> (Tryon)        | Diptera     | Agromyzidae   | chickpea, pigeonpea, pea, green & blackgram.                          | 3          |
| <i>Opisina arenosella</i> Walker         | Lepidoptera | Xyloryctidae  | coconut, oil palm   | 4          |
| <i>Orgyia turbata</i> Butler             | Lepidoptera | Lymantriidae  | groundnut   | 4          |
| <i>Orosius orientalis</i> (Matsumura)    | Hemiptera   | Cicadellidae  | sesame  | 4          |
| <i>Orseolia andropoginis</i> Felt        | Diptera     | Cecidomyiidae | sorghum   | 7          |
| <i>Orseolia oryzae</i> (Wood-Mason)      | Diptera     | Cecidomyiidae | rice  | 2          |
| <i>Oryctes rhinoceros</i> (Linnaeus)     | Coleoptera  | Scarabaeidae  | coconut, oil palm.  | 4          |

Table 1. (cont'd) Arthropod pests of agricultural crops

| Pest   | Order        | Family         | Principal crops attacked                   | See tables |
|--|--------------|----------------|--|------------|
| <i>Ostrinia furnacalis</i> (Guenee)            | Lepidoptera  | Pyralidae      | maize, sorghum.                            | 7          |
| <i>Oxya hyla</i> (Serville)                    | Orthoptera   | Acrididae      | rice                                       | 2          |
| <i>Papilio demoleus</i> Linnaeus               | Lepidoptera  | Papilionidae   | citrus                                     | 11         |
| <i>Paraponyx stagnalis</i> Zeller              | Lepidoptera  | Pyralidae      | rice                                       | 2          |
| <i>Parasa lepida</i> (Cramer)                  | Lepidoptera  | Limacodidae    | castor                                     | 4          |
| <i>Parlatoria ziziphus</i> (Lucas)             | Hemiptera    | Diaspididae    | mango, citrus, apple.                      | 11         |
| <i>Parnara guttatus</i> (Bremer and Grey)      | Lepidoptera  | Hesperiidae    | rice                                       | 2          |
| <i>Pectinophora gossypiella</i> (Saunders)     | Lepidoptera  | Gelechiidae    | cotton                                     | 6          |
| <i>Pelopidas mathias</i> (Fabricius)           | Lepidoptera  | Hesperiidae    | rice                                       | 2          |
| <i>Pentalonia nigronervosa</i> Coquerel        | Hemiptera    | Aphididae      | banana                                     | 11         |
| <i>Phodoryctis caerulea</i> Meyrick            | Lepidoptera  | Gracillariidae | soybean , bean.                            | 3          |
| <i>Phthorimaea operculella</i> (Zeller)        | Lepidoptera  | Gelechiidae    | potato                                     | 9          |
| <i>Phycita infusella</i> (Meyrick)             | Lepidoptera  | Pyralidae      | cotton                                     | 6          |
| <i>Phyllocnistis citrella</i> Stainton         | Lepidoptera  | Gracillariidae | citrus                                     | 11         |
| <i>Phyllocoptruta oleivora</i> (Ashmead)       | Acarina      | Tetranychidae  | citrus                                     | 11         |
| <i>Phyllotreta</i> sp.                         | Coleoptera   | Chrysomelidae  | potato                                     | 9          |
| <i>Phyllotreta striolata</i> (Fabricius)       | Coleoptera   | Chrysomelidae  | cabbage, cauliflower, mustard.             | 8          |
| <i>Pieris canidia</i> (Sparrmann)              | Lepidoptera  | Pieridae       | cabbage, cauliflower                       | 8          |
| <i>Pieris rapae</i> (Linnaeus)                 | Lepidoptera  | Pieridae       | cabbage, cauliflower                       | 8          |
| <i>Planococcus pacificus</i> (Cox)             | Hemiptera    | Pseudococcidae | cocoa, custard apple.                      | 11         |
| <i>Plocaederus obesus</i> Gahan                | Coleoptera   | Cerambycidae   | cashew                                     | 11         |
| <i>Plocaederus pedestris</i> (White)           | Coleoptera   | Cerambycidae   | mango, cashew.                             | 11         |
| <i>Plutella xylostella</i> (Linnaeus)          | Lepidoptera  | Plutellidae    | cabbage, cauliflower.                      | 8          |
| <i>Pnodoryctis coerulea</i> Meyrick            | Lepidoptera  | Gracillariidae | soybean, bean.                             | 11         |
| <i>Polyphagotarsonemus latus</i> (Banks)       | Acarina      | Tetranychidae  | pea, green & blackgram, potato, egg plant, | 3,9        |
| <i>Potamon dayanum</i> (Wood-Mason)            | Crustacea    | Potamidae      | rice                                       | 2          |
| <i>Psalis pennatulata</i> (Fabricius)          | Lepidoptera  | Lymantriidae   | rice                                       | 2          |
| <i>Pseudoceropepes piratis</i> (Meyrick)       | Lepidoptera  | Pyralidae      | cashew                                     | 11         |
| <i>Pseudococcus</i> sp.                        | Hemiptera    | Pseudococcidae | potato                                     | 9          |
| <i>Pseudodendrothrips ornatissimus</i> Schmutz | Thysanoptera | Thripidae      | mulberry                                   | 11         |
| <i>Pyrilla perpusilla</i> (Walker)             | Hemiptera    | Lophopidae     | sugarcane                                  | 5          |

Table 1. (cont'd) Arthropod pests of agricultural crops

| Pest   | Order        | Family         | Principal crops attacked  | See tables       |
|--|--------------|----------------|---|------------------|
| <i>Raodiplosis orientalis</i> Felt               | Diptera      | Cecidomyiidae  | mango   | 11               |
| <i>Recilia dorsalis</i> (Motschulsky)            | Hemiptera    | Cicadellidae   | rice  | 2                |
| <i>Rhopalosiphum maidis</i> (Fitch)              | Hemiptera    | Aphididae      | maize, sorghum.   | 7                |
| <i>Rhynchophorus ferrugineus</i> (Olivier)       | Coleoptera   | Curculionidae  | coconut, oil palm.  | 4                |
| <i>Rhytidodera simulans</i> (White)              | Coleoptera   | Cerambycidae   | mango, cashew.  | 11               |
| <i>Scirpophaga excerptalis</i> (Walker)          | Lepidoptera  | Pyralidae      | sugarcane   | 5                |
| <i>Scirpophaga incertulus</i> (Walker)           | Lepidoptera  | Pyralidae      | rice  | 2                |
| <i>Scirpophaga magnella</i> (de Joannis)         | Lepidoptera  | Pyralidae      | sugarcane   | 5                |
| <i>Scirtothrips dorsalis</i> Hood                | Thysanoptera | Thripidae      | cotton, citrus, groundnut, potato, tomato, egg plant, tobacco.  | 4,6,9,11         |
| <i>Scotinophara</i> sp.                          | Hemiptera    | Pentatomidae   | rice  | 2                |
| <i>Sesamia inferens</i> (Walker)                 | Lepidoptera  | Noctuidae      | rice, maize, sorghum, sugarcane.  | 2,5,7            |
| <i>Sogatella furcifera</i> (Horvath)             | Hemiptera    | Delphacidae    | rice  | 2                |
| <i>Sphenarches caffer</i> (Zeller)               | Lepidoptera  | Pterophoridae  | pigeonpea, bean.  | 3                |
| <i>Sphenoptera ghoshi</i> Thery                  | Coleoptera   | Buprestidae    | bean  | 3                |
| <i>Spilarctia obliqua</i> (Walker)               | Lepidoptera  | Arctiidae      | cabbage, cauliflower, groundnut, pea, soybean, sunflower, castor, pigeonpea, bean, green & blackgram.   | 3,4,8            |
| <i>Spodoptera litura</i> (Fabricius)             | Lepidoptera  | Noctuidae      | rice, cabbage, cauliflower, mustard, cotton, maize, sorghum, mango, banana, castor, pea, chickpea, soybean, bean, green & blackgram, groundnut, tobacco, egg plant. | 2,3,4,6,7,8,9,11 |
| <i>Spodoptera mauritia</i> (Boisduval)           | Lepidoptera  | Noctuidae      | rice  | 2                |
| <i>Stenachroia elongella</i> Hampson             | Lepidoptera  | Pyralidae      | sorghum   | 7                |
| <i>Stenchaetothrips biformis</i> (Bagnall)       | Thysanoptera | Thripidae      | rice  | 2                |
| <i>Stephanitis typica</i> (Distant)              | Hemiptera    | Tingidae       | banana  | 11               |
| <i>Syllepte derogata</i> (Fabricius)             | Lepidoptera  | Pyralidae      | cotton, durian.   | 6,11             |
| <i>Taeniothrips</i> sp.                          | Thysanoptera | Thripidae      | gourd, pumpkin, cucumber, melon.  | 10               |
| <i>Tarbinskiellus portentosus</i> (Lichtenstein) | Orthoptera   | Gryllidae      | groundnut, sesame, sunflower, canola.   | 4                |
| <i>Tessaratoma papillosa</i> (Drury)             | Hemiptera    | Tessaratomidae | litchi  | 11               |
| <i>Tetranychus</i> spp.                          | Acarina      | Tetranychidae  | cotton, gourd, pumpkin.   | 6,10             |
| <i>Theretra alecto</i> (Linnaeus)                | Lepidoptera  | Sphingidae     | grape   | 11               |
| <i>Thrips flavus</i> (Schrank)                   | Thysanoptera | Thripidae      | mustard, egg plant, tomato.   | 8,9              |
| <i>Thrips palmi</i> Karny                        | Thysanoptera | Thripidae      | cabbage, cauliflower, mustard, gourd, pumpkin, cucumber, melon, tomato, tobacco.  | 8,9,10           |

Table 1. (cont'd) Arthropod pests of agricultural crops

| Pest  | Order        | Family        | Principal crops attacked             | See tables |
|---|--------------|---------------|--------------------------------------|------------|
| <i>Thrips tabaci</i> Lindeman               | Thysanoptera | Thripidae     | cotton, potato.                      | 6,9        |
| <i>Thysanoplusia orichalcea</i> (Fabricius) | Lepidoptera  | Noctuidae     | chickpea, pea, groundnut, sunflower. | 3,4        |
| <i>Toxoptera citricidus</i> (Kirkaldy)      | Hemiptera    | Aphididae     | citrus                               | 11         |
| <i>Toxoptera odinae</i> (Van der Goot)      | Hemiptera    | Aphididae     | mango, cashew.                       | 11         |
| <i>Trabala vishnou</i> (Lefebvre)           | Lepidoptera  | Lasiocampidae | castor                               | 4          |
| <i>Trialeurodes ricini</i> (Misra)          | Hemiptera    | Aleyrodidae   | castor                               | 4          |
| <i>Trichoplusia ni</i> (Hubner)             | Lepidoptera  | Noctuidae     | cabbage                              | 8          |
| <i>Trochorrhopalus sacchari</i> Marshall    | Coleoptera   | Curculionidae | sugarcane                            | 5          |
| <i>Urentius hystricellus</i> Richter        | Hemiptera    | Tingidae      | egg plant                            | 9          |
| <i>Varuna litterata</i> (Fabricius)         | Crustacea    | Grapsidae     | rice                                 | 2          |
| <i>Xylotrupes gideon</i> (Linnaeus)         | Coleoptera   | Scarabaeidae  | coconut, cashew.                     | 4,11       |
| <i>Zeuzera coffeae</i> Nietner              | Lepidoptera  | Cossidae      | citrus, coffee.                      | 11         |

Table 2. Arthropod pests of rice

| Pest                                       | Order        | Family         | Myanmar common name | English common name               | Rating |
|--|--------------|----------------|---------------------|-----------------------------------|--------|
| <i>Brevennis rehi</i> (Lindinger)          | Hemiptera    | Pseudococcidae | စပါးဒက်ပိုး         | rice mealybug                     | P      |
| <i>Chilo polychrysus</i> (Meyrick)         | Lepidoptera  | Pyralidae      | ဆစ်ပိုးခေါင်းနက်    | darkheaded rice stemborer         | ++     |
| <i>Chilo suppressalis</i> (Walker)         | Lepidoptera  | Pyralidae      | ဆစ်ပိုးအကြား        | striped rice borer                | ++     |
| <i>Cnaphalocrosis medinalis</i> (Guenee)   | Lepidoptera  | Pyralidae      | ရွက်ခေါက်/ကပ်ပိုး   | rice leaf folder                  | ++     |
| <i>Dicladisa armigera</i> (Olivier)        | Coleoptera   | Chrysomelidae  | ပိုးလောင်မီး        | rice hispid                       | +++    |
| <i>Euscyrtus concinnus</i> (de Hann)       | Orthoptera   | Gryllidae      | နံ့ကောင်            | cricket                           | +      |
| <i>Gryllotalpa orientalis</i> Burmeister   | Orthoptera   | Gryllotalpidae | မြေခွေးပုရစ်        | oriental mole cricket             | +      |
| <i>Hypomeces squamosus</i> (Fabricius)     | Coleoptera   | Curculionidae  | ရွှေမှုန့်ကျိုင်း   | gold dust weevil                  | P      |
| <i>Leptocorisa acuta</i> (Thunberg)        | Hemiptera    | Alydidae       | စပါးနံ့ရပ်ပိုး      | rice earbug , paddybug            | +++    |
| <i>Leptocorisa oratorius</i> (Fabricius)   | Hemiptera    | Alydidae       | စပါးနံ့ရပ်ပိုး      | rice earbug , paddybug            | +++    |
| <i>Melanitis ismene</i> (Cramer)           | Lepidoptera  | Nymphalidae    | စပါးရွက်လိပ်ပြာ     | green horned caterpillar          | P      |
| <i>Mythimna separata</i> (Walker)          | Lepidoptera  | Noctuidae      | နံ့ဖြတ်ပိုး         | paddy armyworm                    | +++    |
| <i>Nephotettix virescens</i> (Distant)     | Hemiptera    | Cicadellidae   | ဖြတ်စိမ်း           | green leafhopper                  | ++     |
| <i>Nezara viridula</i> (Linnaeus)          | Hemiptera    | Pentatomidae   | ပဲဂျိုးစိမ်း        | green vegetable bug               | P      |
| <i>Nilaparvata lugens</i> (Stal)           | Hemiptera    | Delphacidae    | ဖြတ်ညို             | brown planthopper                 | ++     |
| <i>Orseolia oryzae</i> (Wood-mason)        | Diptera      | Cecidomyiidae  | ကြက်သွန်မြိတ်ပိုး   | rice gall midge                   | +++    |
| <i>Oxya hyla</i> (Serville)                | Orthoptera   | Acrididae      | နံ့ကောင်            | rice field grasshopper            | P      |
| <i>Paraponyx stagnalis</i> Zeller          | Lepidoptera  | Pyralidae      | ရွက်လိပ်ပိုး        | rice caseworm, rice case bearer   | +++    |
| <i>Parnara guttatus</i> (Bremer and Grey)  | Lepidoptera  | Hesperiidae    | စပါးရွက်ကပ်ပိုး     | rice skipper                      | P      |
| <i>Pelopidas mathias</i> (Fabricius)       | Lepidoptera  | Hesperiidae    | စပါးရွက်ကပ်ပိုး     | rice skipper                      | P      |
| <i>Potamon dayanum</i> (Wood-mason)        | Crustacea    | Potamidae      | လယ်ပုစွန်လုံး       | land crab                         | +      |
| <i>Psalis pennatulata</i> (Fabricius)      | Lepidoptera  | Lymantriidae   | စပါးနုမွေးရှည်      | hairy caterpillar                 | P      |
| <i>Recilia dorsalis</i> (Motschulsky)      | Hemiptera    | Cicadellidae   | ဖြတ်ကြား            | zigzag leafhopper                 | P      |
| <i>Scirpophaga incertulus</i> (Walker)     | Lepidoptera  | Pyralidae      | အဝါရောင်ဆစ်ပိုး     | yellow rice stemborer             | +++    |
| <i>Scotinophara</i> sp.                    | Hemiptera    | Pentatomidae   | ဂျိုးနက်            | black rice bug                    | P      |
| <i>Sesamia inferens</i> (Walker)           | Lepidoptera  | Noctuidae      | ပန်းရောင်ဆစ်ပိုး    | pink rice stemborer               | +      |
| <i>Sogatella furcifera</i> (Horvath)       | Hemiptera    | Delphacidae    | ဖြတ်ကြောဖြူ         | white backed planthopper          | +++    |
| <i>Spodoptera litura</i> (Fabricius)       | Lepidoptera  | Noctuidae      | ငမြောင်တောင်        | rice cutworm, cluster caterpillar | +++    |
| <i>Spodoptera mauritia</i> (Boisduval)     | Lepidoptera  | Noctuidae      | ငမြောင်တောင်        | rice armyworm                     | +++    |
| <i>Stenchaetothrips biformis</i> (Bagnall) | Thysanoptera | Thripidae      | လှေးပိုး            | rice thrips                       | P      |
| <i>Varuna litterata</i> (Fabricius)        | Crustacea    | Grapsidae      | ဖောင်စီးဂဏန်း       | quasi-sea crab                    | +      |

Table 3. Arthropod pests of pulses

| Pest  | Order       | Family         | Myanmar common name       | English common name    | Pulses attacked | Rating |
|---|-------------|----------------|---------------------------|------------------------|-----------------|--------|
| <i>Acanthoscelides obtectus</i> (Say)       | Coleoptera  | Bruchidae      | ပဲခေ့ထိုးပိုး             | bean bruchid           | 3,6             | ++     |
| <i>Acheta</i> sp.                           | Orthoptera  | Gryllidae      | ငှက်                      | cricket                | 1,2,3,4         | +      |
| <i>Agrotis ipsilon</i> (Hufnagel)           | Lepidoptera | Noctuidae      | ပင်ဖြတ်ပိုး               | black cutworm          | 1,3,5,6         | +      |
| <i>Aphis craccivora</i> (Koch)              | Hemiptera   | Aphididae      | ခြံ                       | cowpea aphid           | 2,3,4           | +++    |
| <i>Aphis fabae</i> (Scopoli)                | Hemiptera   | Aphididae      | ခြံ                       | black bean aphid       | 2,4,5,6         | +++    |
| <i>Aproaema modicella</i> (Deventer)        | Lepidoptera | Gelechiidae    | ပဲရွက်လိပ်ရွက်ကပ်         | groundnut leafminer    | 2,4,6           | +      |
| <i>Archips micaceanus</i> (Walker)          | Lepidoptera | Tortricidae    | ရွက်လိပ်                  | soybean leafroller     | 4,6             | +      |
| <i>Callosobruchus</i> sp.                   | Coleoptera  | Bruchidae      | ပဲခေ့ထိုးပိုး             | cowpea bruchid         | 3,4,6           | +++    |
| <i>Empoasca flavescens</i> (Fabricius)      | Hemiptera   | Cicadellidae   | မြှုပ်ပိုး                | pulse leafhopper       | 2               | ++     |
| <i>Epilachna</i> sp.                        | Coleoptera  | Coccinellidae  | လိပ်ခိုးကျိုင်း           | epilach beetle         | 3,4             | +      |
| <i>Etiella zinckenella</i> (Treitschke)     | Lepidoptera | Pyralidae      | ပဲထောင်ထိုးပိုး           | pea pod borer          | 2,6             | ++     |
| <i>Euchrysops cnejus</i> (Fabricius)        | Lepidoptera | Lycaenidae     | ပဲထောင်ထိုးလိပ်ပြာ        | bean blue butterfly    | 2,6             | +      |
| <i>Exelastis atomosa</i> (Walsingham)       | Lepidoptera | Pterophoridae  | ငှက်မွှေးဖလံ              | bean plume moth        | 2,6             | P      |
| <i>Helicoverpa armigera</i> (Hubner)        | Lepidoptera | Noctuidae      | သီးလုံးခေါက်ပိုး          | cotton bollworm        | 1,2,3,6         | +++    |
| <i>Lampides boeticus</i> (Linnaeus)         | Lepidoptera | Lycaenidae     | ပဲလိပ်ပြာ                 | pea blue butterfly     | 2,3             | +      |
| <i>Maruca vitrata</i> (Fabricius)           | Lepidoptera | Pyralidae      | စက်ပြောက်သီးလုံးဖောက်ပိုး | legume pod borer       | 2               | +++    |
| <i>Medythia suturalis</i> (Motschulsky)     | Coleoptera  | Chrysomelidae  | လှေးကျိုင်း               | striped flea beetle    | 3,5,6           | ++     |
| <i>Melanagromyza obtusa</i> (Malloch)       | Diptera     | Agromyzidae    | သီးထိုးယင်                | pod fly                | 2               | ++     |
| <i>Mylabris pustulata</i> (Thunberg)        | Coleoptera  | Meloidae       | ဖူးယောင်ကျိုင်း           | blister beetle         | 2,5             | +      |
| <i>Nezara viridula</i> (Linnaeus)           | Hemiptera   | Pentatomidae   | ပဲဂျိုးခိမ်း              | green vegetable bug    | 3,6             | ++     |
| <i>Odontotermes</i> sp.                     | Isoptera    | Termitidae     | ခြံ                       | termite                | 1,2,3,6         | ++     |
| <i>Omiodes indicata</i> (Fabricius)         | Lepidoptera | Pyralidae      | ပဲရွက်ထိုးပိုး            | soybean webworm        | 5               | P      |
| <i>Ophiomyia phaseoli</i> (Tryon)           | Diptera     | Agromyzidae    | ပဲပင်စည်သိုးယင်           | bean stem fly          | 1,2,3,5         | ++     |
| <i>Phodoryctis caerulea</i> (Meyrick)       | Lepidoptera | Gracillariidae | ရွက်ထွင်းပိုး             | bean leafminer         | 4               | P      |
| <i>Polyphagotarsonemus latus</i> (Banks)    | Acarina     | Tetranychidae  | မွှားပင်, ကုန်း           | yellow tea mite        | 3,5             | +      |
| <i>Sphenarches caffer</i> (Zeller)          | Lepidoptera | Pterophoridae  | ငှက်မွှေးဖလံ              | bean plume moth        | 2,6             | +      |
| <i>Sphenoptera ghoshi</i> Thery             | Coleoptera  | Buprestidae    | ပဲပင်စည်သိုးကျိုး         | bean stem beetle       | 6               | +      |
| <i>Spilarctia obliqua</i> (Walker)          | Lepidoptera | Arctiidae      | ရွက်စုံစားရွက်            | jute hairy caterpillar | 2,3,4,5,6       | ++     |
| <i>Spodoptera litura</i> (Fabricius)        | Lepidoptera | Noctuidae      | ငါးမြောင်ဘောင်            | cluster caterpillar    | 1,3,4,5,6       | +++    |
| <i>Thysanoplusia orichalcea</i> (Fabricius) | Lepidoptera | Noctuidae      | ထွက်ကောင်ခိမ်း            | flax caterpillar       | 1,3             | P      |

Key: 1. Chickpea ; 2. Pigeonpea; 3. Pea; 4. Soybean; 5. Green and black gram; 6. Bean

Table 4. Arthropod pests of oil seed crops

| Pest                                       | Order        | Family          | Myanmar common name        | English common name          | Oil seed crop attacked | Rating |
|--|--------------|-----------------|----------------------------|------------------------------|------------------------|--------|
| <i>Achaea janata</i> (Linnaeus)            | Lepidoptera  | Noctuidae       | ထွာကောင်                   | castor semi-looper           | 7                      | P      |
| <i>Acherontia styx</i> (Westwood)          | Lepidoptera  | Sphingidae      | နှမ်းဖလံ                   | small death's head hawk moth | 2                      | P      |
| <i>Aleurodicus destructor</i> Mackie       | Hemiptera    | Aleurodidae     | အုန်းယင်ဖြူ                | coconut whitefly             | 5                      | P      |
| <i>Amsacta lactinea</i> (Cramer)           | Lepidoptera  | Arctiidae       | ရူနီ                       | red tiger moth               | 1                      | P      |
| <i>Anomala antiqua</i> (Gyllenhal)         | Coleoptera   | Scarabaeidae    | နှမ်းကျိုင်းနက်            | black sesame beetle          | 1,2                    | +      |
| <i>Antigastra catalaunalis</i> (Duponchel) | Lepidoptera  | Pyrilidae       | နှမ်းရွက်လိပ်              | sesame webworm               | 2                      | +      |
| <i>Aphis craccivora</i> (Koch)             | Hemiptera    | Aphididae       | ပြ                         | cow pea aphid                | 1                      | ++     |
| <i>Aproaerema modicella</i> (Deventer)     | Lepidoptera  | Gelechiidae     | မြေပဲရွက်လိပ်/ရွက်ကပ်      | groundnut leafminer          | 1                      | +++    |
| <i>Archips micaceanus</i> (Walker)         | Lepidoptera  | Tortricidae     | ပဲရွက်လိပ်                 | soybean leafroller           | 1                      | P      |
| <i>Ariadne merione</i> (Cramer)            | Lepidoptera  | Nymphalidae     | ကြက်ဆူရူကောင်              | spiny castor caterpillar     | 7                      | P      |
| <i>Artona catoxantha</i> (Hampson)         | Lepidoptera  | Zygaenidae      | အုန်းလိပ်ပြာ               | coconut leaf moth            | 5,6                    | P      |
| <i>Aspidiotus destructor</i> Signoret      | Hemiptera    | Diaspididae     | အုန်းကြေးရိုး              | coconut scale                | 5,6                    | P      |
| <i>Aularches miliaris</i> (Linnaeus)       | Orthoptera   | Gryllidae       | စက်ပျောက်နှံကောင်          | spotted grasshopper          | 6                      | P      |
| <i>Bemisia tabaci</i> (Gennadius)          | Hemiptera    | Aleyrodidae     | ယင်ဖြူ                     | tobacco whitefly             | 7                      | +      |
| <i>Brachytrupes</i> sp.                    | Orthoptera   | Gryllidae       | ဆီအုန်းပုရစ်               | oil palm cricket             | 6                      | P      |
| <i>Caliothrips indicus</i> (Bagnall)       | Thysanoptera | Thripidae       | မြေပဲလှေး                  | groundnut thrips             | 1                      | +      |
| <i>Chrysomphalus aonidum</i> (Linnaeus)    | Hemiptera    | Diaspididae     | အုန်းကြေးရိုး              | purple scale                 | 5                      | P      |
| <i>Condica capensis</i> Guenee             | Lepidoptera  | Noctuidae       | ပန်းနှမ်းရူကောင်           | safflower caterpillar        | 4                      | P      |
| <i>Coptotermes curvignathus</i> (Holm)     | Isoptera     | Rhinotermitidae | ခြေ                        | coconut termite              | 1,5,6                  | +      |
| <i>Empoasca</i> sp.                        | Hemiptera    | Cicadellidae    | ဖြူတံစိမ်း                 | jassid                       | 1,3,4,7                | ++     |
| <i>Elasmopalpus sordidus</i> (Fabricius)   | Hemiptera    | Lygaeidae       | နှမ်းစေ့စုပ်ကျဉ်း          | sesame seed bug              | 2                      | +      |
| <i>Eysarcoris guttiger</i> (Thunberg)      | Hemiptera    | Pentatomidae    | နှမ်းစက်ပျောက်ကျဉ်း        | two-spotted sesame bug       | 2                      | P      |
| <i>Helicoverpa armigera</i> (Hubner)       | Lepidoptera  | Noctuidae       | အပွင့်စားရိုး              | head borer, boll worm        | 1,2,3                  | ++     |
| <i>Heteroderes lenis</i> Cand              | Coleoptera   | Elateridae      | ဆတ်တောက်ရိုး               | wire worm                    | 1                      | +      |
| <i>Holotrichia</i> sp.                     | Coleoptera   | Scrabaeidae     | ဖိုးလမင်းကျိုင်း           | chafer beetle                | 1                      | ++     |
| <i>Hypolixus Pica</i> (Fabricius)          | Coleoptera   | Curculionidae   | ပင်စည်ထိုးနှာတံရှည်ကျိုင်း | amaranthus stem weevil       | 3,5                    | P      |
| <i>Odontotermes</i> sp.                    | Isoptera     | Termitidae      | ခြေ                        | termite                      | 1,2,5,6                | ++     |
| <i>Opisina arenosella</i> (Walker)         | Lepidoptera  | Xyloryctidae    | အုန်းရူကောင်               | palm leaf caterpillar        | 5,6                    | +      |
| <i>Orgyia turbata</i> (Butler)             | Lepidoptera  | Lymantriidae    | မြေပဲရူမွေးရှည်            | groundnut hairy caterpillar  | 1                      | +      |

Key: 1. Groundnut ; 2. Sesame; 3. Sunflower; 4. Safflower; 5. Coconut; 6. Oil palm; 7. Castor; 8. Canola and others

Table 4. (cont'd) Arthropod pests of oil seed crops

| Pest   | Order        | Family        | Myanmar common name   | English common name             | Oil seed crop attacked | Rating |
|--|--------------|---------------|-----------------------|---------------------------------|------------------------|--------|
| <i>Orosius orientalis</i> (Matsumura)            | Hemiptera    | Cicadellidae  | နှမ်းဖြတ်ညို          | sesame jassid                   | 2                      | ++     |
| <i>Oryctes rhinoceros</i> (Linnaeus)             | Coleoptera   | Scarabaeidae  | အုန်းကျိုင်း          | rhinoceros beetle               | 5,6                    | +      |
| <i>Parasa lepida</i> (Cramer)                    | Lepidoptera  | Limacodidae   | ကြက်ဆူနုမွေးစုပ်      | blue striped nettle caterpillar | 7                      | P      |
| <i>Rhynchophorus ferrugineus</i> (Olivier)       | Coleoptera   | Curculionidae | အုန်းနှာတံရှည်ကျိုင်း | Asiatic palm weevil             | 5,6                    | P      |
| <i>Scirtothrips dorsalis</i> Hood                | Thysanoptera | Thripidae     | လှေးပိုး              | chilli thrips                   | 1                      | +      |
| <i>Spilarctia obliqua</i> (Walker)               | Lepidoptera  | Arctiidae     | ရွက်စုံစားခုဝါ        | jute hairy caterpillar          | 1,3,7                  | +      |
| <i>Spodoptera litura</i> (Fabricius)             | Lepidoptera  | Noctuidae     | ငမေ့ရှောင်ကောင်       | cluster caterpillar             | 1,7                    | +++    |
| <i>Tarbinskiellus portentosus</i> (Lichtenstein) | Orthoptera   | Gryllidae     | ပုရစ်ကြီး             | large brown cricket             | 1,2,3,8                | +++    |
| <i>Thyanoplusia orichalcea</i> (Fabricius)       | Lepidoptera  | Noctuidae     | ထွာကောင်စိမ်း         | flax caterpillar                | 1,3                    | +      |
| <i>Trabala vishnou</i> (Lefebvre)                | Lepidoptera  | Lasiocampidae | ကြက်ဆူနုမွေးရှည်      | castor hairy caterpillar        | 7                      | P      |
| <i>Trialeurodes ricini</i> (Misra)               | Hemiptera    | Aleyrodidae   | ကြက်ဆူယင်ဖြူ          | castor whitefly                 | 7                      | P      |
| <i>Xylotrupes gideon</i> (Linnaeus)              | Coleoptera   | Scarabaeidae  | အုန်းကျိုင်း          | elephant beetle                 | 5                      | +      |

Key: 1. Groundnut ; 2. Sesame; 3. Sunflower; 4. Safflower; 5. Coconut; 6. Oil palm; 7. Castor; 8. Canola and others

Table 5. Arthropod pests of sugarcane

| Pest                                      | Order       | Family         | Myanmar common name | English common name          | Rating |
|---|-------------|----------------|---------------------|------------------------------|--------|
| <i>Abidama producta</i> (Walker)          | Hemiptera   | Cercopidae     | ကြဲဖြုတ်ပိုး        | sugarcane frog hopper        | P      |
| <i>Aleurolobus barodensis</i> (Maskell)   | Hemiptera   | Aleyrodidae    | ကြဲယင်ဖြူ           | sugarcane whitefly           | P      |
| <i>Alissonotum impressicole</i> Arrow     | Coleoptera  | Scarabaeidae   | ကျိုင်းနက်          | black sugarcane beetle       | + + +  |
| <i>Anomala antiqua</i> (Gyllenhal)        | Coleoptera  | Scarabaeidae   | ပိုးလမင်းကျိုင်း    | black beetle                 | + +    |
| <i>Callitettix versicolor</i> (Fabricius) | Hemiptera   | Cercopidae     | ကြဲရှည်မျှပ်ပိုး    | sugarcane spittle bug        | P      |
| <i>Ceratovacuna lanigera</i> (Zehntner)   | Hemiptera   | Aphididae      | ကြဲပြဲပိုး          | white sugarcane aphid        | P      |
| <i>Chilo auricilius</i> (Dudgeon)         | Lepidoptera | Pyralidae      | ကြဲဆစ်ပိုး          | stalk borer                  | +      |
| <i>Chilo infuscatellus</i> Snellen        | Lepidoptera | Pyralidae      | ကြဲဆစ်ပိုး          | yellow top-borer             | +      |
| <i>Chilo suppressalis</i> (Walker)        | Lepidoptera | Pyralidae      | ကြဲဆစ်ပိုး          | striped sugarcane borer      | + +    |
| <i>Chilo tumidicostalis</i> (Hampson)     | Lepidoptera | Pyralidae      | ကြဲဆစ်ပိုး          | spotted sugarcane stem borer | + + +  |
| <i>Gryllotalpa orientalis</i> Burmeister  | Orthoptera  | Gryllotalpidae | မြေခွေးပုရစ်        | oriental mole cricket        | P      |
| <i>Heteroderes lenis</i> Candeze          | Coleoptera  | Elateridae     | ဆတ်တောက်ပိုး        | wire worm                    | +      |
| <i>Holotrichia</i> sp.                    | Coleoptera  | Scarabaeidae   | ပိုးလမင်းကျိုင်း    | sugarcane beetle             | +      |
| <i>Hypomeces squamosus</i> (Fabricius)    | Coleoptera  | Curculionidae  | နှာတံရှည်ကျိုင်း    | green weevil                 | P      |
| <i>Kiritshenkella sacchari</i> (Green)    | Hemiptera   | Pseudococcidae | ကြေးပိုး            | sugarcane mealy bug          | +      |
| <i>Macrotermes</i> sp.                    | Isoptera    | Termitidae     | ခြေ                 | sugarcane termite            | + +    |
| <i>Pyrrilla perpusilla</i> (Walker)       | Hemiptera   | Lophopidae     | ကြဲဖြုတ်ပိုး        | sugarcane pyrrilla           | P      |
| <i>Scirpophaga excerptalis</i> (Walker)   | Lepidoptera | Pyralidae      | ခေါင်ညွန့်ထိုးပိုး  | sugarcane top borer          | + + +  |
| <i>Scirpophaga magnella</i> de Joannis    | Lepidoptera | Pyralidae      | ခေါင်ညွန့်ထိုးပိုး  | sugarcane top borer          | + + +  |
| <i>Sesamia inferens</i> (Walker)          | Lepidoptera | Noctuidae      | ပန်းရောင်ဆစ်ပိုး    | pink stem borer              | +      |
| <i>Trochorrhopalus sacchari</i> Marshall  | Coleoptera  | Curculionidae  | နှာတံရှည်ကျိုင်း    | sugarcane weevil             | P      |

Table 6. Arthropod pests of cotton

| Pest                                       | Order        | Family        | Myanmar common name            | English common name              | Rating |
|--|--------------|---------------|--------------------------------|----------------------------------|--------|
| <i>Agrotis ipsilon</i> (Hufnagel)          | Lepidoptera  | Noctuidae     | ပင်ဖြတ်ပိုး                    | black cutworm                    | +      |
| <i>Alcidodes affaber</i> (Aurivillius)     | Coleoptera   | Curculionidae | ခခါင်ညွန့်ထိုးနှာတ်ရှည်ကျိုင်း | cotton shoot weevil              | P      |
| <i>Amrasca devastans</i> (Distant)         | Hemiptera    | Cicadellidae  | ခါဖြတ်ပိုး                     | cotton leafhopper                | ++     |
| <i>Anomis flava</i> (Fabricius)            | Lepidoptera  | Noctuidae     | ထွာကောင်                       | cotton semi-looper               | P      |
| <i>Aphis gossypii</i> Glover               | Hemiptera    | Aphididae     | ဖြဲပိုး                        | cotton aphid, melon aphid        | +++    |
| <i>Bemisia tabaci</i> (Gennadius)          | Hemiptera    | Aleyrodidae   | ယင်ဖြူ                         | tobacco whitefly                 | +      |
| <i>Dysdercus cingulatus</i> (Fabricius)    | Hemiptera    | Pyrrhocoridae | ဝါပိုးနီ                       | cotton stainer bug               | ++     |
| <i>Earias insulana</i> (Boisduval)         | Lepidoptera  | Noctuidae     | ဆူးပါသီးလုံးဖောက်ပိုး          | spiny bollworm                   | +      |
| <i>Earias vittella</i> (Fabricius)         | Lepidoptera  | Noctuidae     | စက်ပြောက်သီးလုံးဖောက်ပိုး      | rough bollworm, spotted bollworm | +++    |
| <i>Empoasca</i> sp.                        | Hemiptera    | Cicadellidae  | ဖြတ်ပိုး                       | cotton jassid                    | +      |
| <i>Helicoverpa armigera</i> (Hubner)       | Lepidoptera  | Noctuidae     | ဝါသီးလုံးဖောက်ပိုး             | cotton bollworm                  | +++    |
| <i>Hypomeces squamosus</i> (Fabricius)     | Coleoptera   | Curculionidae | အစိမ်းရောင်နှာတ်ရှည်ကျိုင်း    | green weevil                     | P      |
| <i>Nezara viridula</i> (Linnaeus)          | Hemiptera    | Pentatomidae  | ဂျိုပိုးစိမ်း                  | green vegetable bug              | P      |
| <i>Pectinophora gossypiella</i> (Saunders) | Lepidoptera  | Gelechiidae   | ပန်းရောင်သီးလုံးဖောက်ပိုး      | pink bollworm                    | ++     |
| <i>Phycita infusella</i> (Meyrick)         | Lepidoptera  | Pyalidae      | ရွက်ထွေးပိုး                   | cotton bud caterpillar           | P      |
| <i>Scirtothrips dorsalis</i> Hood          | Thysanoptera | Thripidae     | လှေးပိုး                       | cotton thrips                    | ++     |
| <i>Spodoptera litura</i> (Fabricius)       | Lepidoptera  | Noctuidae     | ရွက်စားပိုး                    | cluster caterpillar              | ++     |
| <i>Syllepte derogata</i> (Fabricius)       | Lepidoptera  | Pyalidae      | ဝါရွက်လိပ်                     | cotton leaf roller               | P      |
| <i>Tetranychus</i> spp.                    | Acarina      | Tetranychidae | မွားပင်, ကျ                    | cotton mite                      | +++    |
| <i>Thrips tabaci</i> Lindeman              | Thysanoptera | Thripidae     | လှေးပိုး                       | onion thrips                     | ++     |

Table 7. Arthropod pests of maize and sorghum

| Pest  | Order        | Family        | Myanmar common name           | English common name    | Plant attacked | Rating |
|---|--------------|---------------|-------------------------------|------------------------|----------------|--------|
| <i>Adoretus birmanus</i> Arrow                    | Coleoptera   | Scarabaeidae  | မိုးလမင်းကျိုင်း              | chafer beetle          | 1,2            | P      |
| <i>Agrotis ipsilon</i> (Hufnagel)                 | Lepidoptera  | Noctuidae     | ဝင်ဖြတ်ပိုး                   | black cutworm          | 1,2            | +      |
| <i>Agrotis segetum</i> (Denis and Schiffermuller) | Lepidoptera  | Noctuidae     | ဝင်ဖြတ်ပိုး                   | black cutworm          | 1,2            | +      |
| <i>Amrasca</i> sp.                                | Hemiptera    | Cicadellidae  | ဖြူတ်ပိုး                     | maize leaf hopper      | 1              | +      |
| <i>Amsacta albistriga</i> (Walker)                | Lepidoptera  | Arctiidae     | ရုခွေးရှည်                    | hairy caterpillar      | 1,2            | +      |
| <i>Atherigona soccata</i> (Rondani)               | Diptera      | Muscidae      | နံ့ခါးပြောင်းခေါင်ညှန်ထိုးယင် | sorghum shoot fly      | 2              | +      |
| <i>Chilo</i> spp.                                 | Lepidoptera  | Pyralidae     | ဆစ်ပိုး                       | stem borer             | 2              | +      |
| <i>Chilo suppressalis</i> (Walker)                | Lepidoptera  | Pyralidae     | ဆစ်ပိုးအကြား                  | striped rice borer     | 1              | +      |
| <i>Frankliniella</i> sp.                          | Thysanoptera | Thripidae     | လှေးပိုး                      | thrips                 | 1              | P      |
| <i>Helicoverpa armigera</i> (Hubner)              | Lepidoptera  | Noctuidae     | သီးလုံးဖောက်ပိုး              | cotton bollworm        | 1              | +++    |
| <i>Hypomeces squamosus</i> (Fabricius)            | Coleoptera   | Curculionidae | အစိမ်းရောင်နှာတံရှည်ကျိုင်း   | green weevil           | 1              | +      |
| <i>Macrotermes</i> spp.                           | Isoptera     | Termitidae    | ခြံ                           | termite                | 1,2            | ++     |
| <i>Marasmia trapezalis</i> (Guenee)               | Lepidoptera  | Pyralidae     | ရွက်ထွေးပိုး                  | sorghum webworm        | 2              | ++     |
| <i>Melanaphis sacchari</i> (Zehntner)             | Hemiptera    | Aphididae     | ပြဲပိုး                       | yellow sugarcane aphid | 2              | +      |
| <i>Mythimna</i> sp.                               | Lepidoptera  | Noctuidae     | ဝင်ဖြတ်ပိုး                   | cutworm                | 1              | ++     |
| <i>Mythimna separata</i> (Walker)                 | Lepidoptera  | Noctuidae     | ဝင်ဖြတ်ပိုး                   | paddy armyworm         | 1,2            | ++     |
| <i>Nezara viridula</i> (Linnaeus)                 | Hemiptera    | Pentatomidae  | ဂျိုးစိမ်း                    | green vegetable bug    | 1,2            | +      |
| <i>Orseolia andropoginis</i> Felt                 | Diptera      | Cecidomyiidae | နံ့စေ့ထိုးယင်                 | sorghum grain midge    | 2              | P      |
| <i>Ostrinia furnacalis</i> (Guenee)               | Lepidoptera  | Pyralidae     | ပြောင်းစေ့ထိုးပိုး            | Asian corn borer       | 1,2            | +      |
| <i>Rhopalosiphum maidis</i> (Fitch)               | Hemiptera    | Aphididae     | ပြောင်းဖူးပြ                  | maize aphid            | 1,2            | ++     |
| <i>Sesamia inferens</i> (Walker)                  | Lepidoptera  | Pyralidae     | ပန်းရောင်ဆစ်ပိုး              | pink stemborer         | 1,2            | +      |
| <i>Spodoptera litura</i> (Fabricius)              | Lepidoptera  | Noctuidae     | ငမြောင်တောင်                  | cluster caterpillar    | 1,2            | +++    |
| <i>Stenachroia elongella</i> Hampson              | Lepidoptera  | Pyralidae     | နံ့စားပြောင်းစေ့ထွေးပိုး      | sorghum caterpillar    | 2              | +      |

Key: 1. Maize; 2. Sorghum

Table 8. Arthropod pests of cruciferous crops

| Pest  | Order        | Family         | Myanmar common name | English common name         | Plant attacked | Rating |
|---|--------------|----------------|---------------------|-----------------------------|----------------|--------|
| <i>Agrotis ipsilon</i> (Hufnagel)                 | Lepidoptera  | Noctuidae      | ပင်ဖြတ်ပိုး         | black cutworm               | 1,2            | ++     |
| <i>Agrotis segetum</i> (Denis and Schiffermuller) | Lepidoptera  | Noctuidae      | ပင်ဖြတ်ပိုး         | black cutworm               | 1,2,3          | +      |
| <i>Athalia lugens</i> (Klug)                      | Hymenoptera  | Tenthredinidae | မုံညှင်း၊ မုံလာယင်  | mustard sawfly              | 1,2,3          | +      |
| <i>Bagrada hilaris</i> (Burmeister)               | Hemiptera    | Pentatomidae   | ရောင်မုံကျပိုး      | painted bug                 | 1,2,3          | +      |
| <i>Brevicoryne brassicae</i> (Linnaeus)           | Hemiptera    | Aphididae      | ဖြဲပိုး             | cabbage aphid               | 1,2            | ++     |
| <i>Crocidolomia pavonana</i> (Fabricius)          | Lepidoptera  | Pyralidae      | မုံညှင်း၊ မုံလာနူ   | cabbage cluster caterpillar | 1,2,3          | +      |
| <i>Dorylus orientalis</i> Westwood                | Hymenoptera  | Formicidae     | ပုရွက်ဆိတ်နီ        | oriental army ant           | 1,2            | P      |
| <i>Eurydema pulchrum</i> (Westwood)               | Hemiptera    | Pentatomidae   | ကော်ဖီကျပိုး        | cabbage bug                 | 1,2            | P      |
| <i>Helicoverpa armigera</i> (Hubner)              | Lepidoptera  | Noctuidae      | သီးလုံးဖောက်ပိုး    | cotton bollworm             | 1,2            | ++     |
| <i>Hellula undalis</i> (Fabricius)                | Lepidoptera  | Pyralidae      | ပင်စည်ထွင်းပိုး     | cabbage centre grub         | 1,2,3          | +      |
| <i>Lipaphis erysimi</i> (Kaltenbach)              | Hymenoptera  | Aphididae      | ဖြဲပိုး             | cabbage aphid               | 1,2            | ++     |
| <i>Phyllotreta striolata</i> (Fabricius)          | Coleoptera   | Chrysomelidae  | လေးကျိုင်း          | cabbage flea beetle         | 1,2,3          | +      |
| <i>Pieris canidia</i> (Sparrmann)                 | Lepidoptera  | Pieridae       | ကော်ဖီလိပ်ပြာဖြူ    | small cabbage butterfly     | 1,2            | ++     |
| <i>Pieris rapae</i> (Linnaeus)                    | Lepidoptera  | Pieridae       | ကော်ဖီလိပ်ပြာဖြူ    | small cabbage butterfly     | 1,2            | ++     |
| <i>Plutella xylostella</i> (Linnaeus)             | Lepidoptera  | Plutellidae    | ကော်ဖီစိန်ကွက်ပလံ   | diamondback moth            | 1,2            | +++    |
| <i>Spilarctia obliqua</i> (Walker)                | Lepidoptera  | Arctiidae      | ရွက်ရုံစားနူဝါ      | jute hairy caterpillar      | 1,2            | +      |
| <i>Spodoptera litura</i> (Fabricius)              | Lepidoptera  | Noctuidae      | ငဖြောင်တောင်        | cluster caterpillar         | 1,2,3          | ++     |
| <i>Thrips flavus</i> Schrank                      | Thysanoptera | Thripidae      | လေးပိုး             | thrips                      | 3              | +      |
| <i>Thrips palmi</i> Karny                         | Thysanoptera | Thripidae      | လေးပိုး             | melon thrips                | 1,2,3          | +      |
| <i>Trichoplusia ni</i> (Hubner)                   | Lepidoptera  | Noctuidae      | ကော်ဖီထွာကောင်      | cabbage looper              | 1              | +      |

Key: 1. Cabbage; 2. Cauliflower; 3. Mustard

**Table 9. Arthropod pests of solanaceous crops**

| Pest  | Order        | Family         | Myanmar common name         | English common name          | Plant attacked | Rating |
|---|--------------|----------------|-----------------------------|------------------------------|----------------|--------|
| <i>Acherontia styx</i> (Westwood)                 | Lepidoptera  | Sphingidae     | နွမ်းဖလံ                    | small death's head hawk moth | 2              | +      |
| <i>Agrotis ipsilon</i> (Hufnagel)                 | Lepidoptera  | Noctuidae      | ပင်ဖြတ်ပိုး                 | black cutworm                | 1,5            | ++     |
| <i>Agrotis segetum</i> (Denis and Schiffermuller) | Lepidoptera  | Noctuidae      | အာလူးဖြတ်ပိုး               | common cutworm               | 1,5            | ++     |
| <i>Amrasca</i> sp.                                | Hemiptera    | Cicadellidae   | ဝါဖြူပိုး                   | cotton leafhopper            | 2              | ++     |
| <i>Aphis gossypii</i> Glover                      | Hemiptera    | Aphididae      | ပြပိုး                      | cotton aphid, melon aphid    | 1,2            | ++     |
| <i>Aspidomorpha indica</i> Boheman                | Coleoptera   | Chrysomelidae  | ကစွန်းကျိုင်း               | tortoise beetle              | 6              | P      |
| <i>Atractomorpha crenulata</i> (Fabricius)        | Orthoptera   | Pyrgomorphidae | ဆေးရွက်ကြီးနံ့ကောင်         | tobacco grasshopper          | 5              | P      |
| <i>Bactrocera cucurbitae</i> (Coquillet)          | Diptera      | Tephritidae    | သစ်သီးထိုးယင်               | melon fruitfly               | 4              | +      |
| <i>Bactrocera dorsalis</i> (Hendel)               | Diptera      | Tephritidae    | သစ်သီးထိုးယင်               | oriental fruitfly            | 2,3,4          | ++     |
| <i>Bagrada hilaris</i> (Burmeister)               | Hemiptera    | Pentatomidae   | ရောင်ရဲကျိုး                | painted bug                  | 1,2            | +      |
| <i>Bemisia tabaci</i> (Gennadius)                 | Hemiptera    | Aleyrodidae    | ဆေးရွက်ကြီးယင်ဖြူ           | tobacco white fly            | 1,5            | +      |
| <i>Cylas formicarius</i> (Fabricius)              | Coleoptera   | Apionidae      | ကစွန်းနှာတံရှည်ကျိုင်း      | sweet potato weevil          | 6              | P      |
| <i>Cyrtopeltis tenuis</i> Reuter                  | Hemiptera    | Miridae        | ကျိုး                       | tomato bug                   | 3,5            | P      |
| <i>Empoasca flavescens</i> (Fabricius)            | Hemiptera    | Cicadellidae   | ဖြူပိုး                     | egg plant jassid             | 2              | P      |
| <i>Epilachna pusillanima</i> Mulsant              | Coleoptera   | Coccinellidae  | ၂၀ ပျောက်ကျိုင်း            | 20 spotted lady bird beetle  | 1              | ++     |
| <i>Epilachna vigintioctopunctata</i> (Fabricius)  | Coleoptera   | Coccinellidae  | ၂၈ ပျောက်ကျိုင်း            | 28 spotted lady bird beetle  | 2              | ++     |
| <i>Eublemma olivacea</i> (Walker)                 | Lepidoptera  | Noctuidae      | ခရမ်းရွက်လိပ်               | eggplant leaf roller         | 2              | ++     |
| <i>Helicoverpa armigera</i> (Hubner)              | Lepidoptera  | Noctuidae      | သီးလုံးဖောက်ပိုး            | cotton bollworm              | 1,3,5          | +++    |
| <i>Helicoverpa assulta</i> (Guenee)               | Lepidoptera  | Noctuidae      | သီးလုံးဖောက်ပိုး            | tobacco budworm              | 5              | ++     |
| <i>Hypomaces Squamosus</i> (Fabricius)            | Coleoptera   | Curculionidae  | အစိမ်းရောင်နှာတံရှည်ကျိုင်း | green weevil                 | 5              | +      |
| <i>Leucinodes orbonalis</i> (Guenee)              | Lepidoptera  | Pyalidae       | ခရမ်းသီးပိုး                | brinjal fruit borer          | 2              | ++     |
| <i>Myzus persicae</i> (Sulzer)                    | Hemiptera    | Aphididae      | ပြ                          | peach aphid                  | 1,3,5          | ++     |
| <i>Nezara viridula</i> (Linnaeus)                 | Hemiptera    | Pentatomidae   | ကျိုးခိမ်း                  | green vegetable bug          | 1,4            | +      |
| <i>Phthorimaea operculella</i> (Zeller)           | Lepidoptera  | Gelechiidae    | အာလူးပိုး                   | potato tuber moth            | 1              | ++     |
| <i>Phyllotreta</i> sp.                            | Coleoptera   | Chrysomelidae  | လှေးကျိုင်း                 | flea beetle                  | 1              | +      |
| <i>Polyphagotrasonemus latus</i> (Banks)          | Acarina      | Tetranychidae  | မွှားပင်ကူ                  | yellow tea mite              | 1,2,3          | +      |
| <i>Pseudococcus</i> sp.                           | Hemiptera    | Pseudococcidae | အကြေးပိုး                   | potato mealy bug             | 1              | P      |
| <i>Scirtothrips dorsalis</i> Hood                 | Thysanoptera | Thripidae      | လှေးပိုး                    | cotton thrips                | 1,2,3,5        | ++     |
| <i>Spodoptera litura</i> (Fabricius)              | Lepidoptera  | Noctuidae      | ငမုတ်တောင်                  | cluster caterpillar          | 2,5            | +++    |

Key: 1. Potato; 2. Egg plant; 3. Tomato; 4. Capsicum; 5. Tobacco; 6. Sweet potato

Table 9. (cont'd) Arthropod pests of solanaceous crops

| Pest                                 | Order        | Family    | Myanmar common name | English common name | Plant attacked | Rating |
|--------------------------------------|--------------|-----------|---------------------|---------------------|----------------|--------|
| <i>Thrips flavus</i> Schrank         | Thysanoptera | Thripidae | လှေ့ဖိုး            | thrips              | 2,3            | +      |
| <i>Thrips palmi</i> Karny            | Thysanoptera | Thripidae | လှေ့ဖိုး            | melon thrips        | 3,5            | +      |
| <i>Thrips tabaci</i> Lindeman        | Thysanoptera | Thripidae | လှေ့ဖိုး            | onion thrips        | 1              | ++     |
| <i>Urentius hystricellus</i> Richter | Hemiptera    | Tingidae  | ဂျပ်ဖိုး            | egg plant lace bug  | 2              | P      |
| <i>Zeuzera coffeae</i> Nietner       | Lepidoptera  | Cossidae  |                     |                     |                |        |

Key: 1. Potato; 2 . Egg plant; 3. Tomato; 4. Capsicum; 5. Tobacco; 6. Sweet potato

Table 10. Arthropod pests of cucurbit crops

| Pest                                      | Order        | Family        | Myanmar common name | English common name       | Plant attacked | Rating |
|---|--------------|---------------|---------------------|---------------------------|----------------|--------|
| <i>Aphis gossypii</i> Glover              | Hemiptera    | Aphididae     | ပြဲဖိုး             | cotton aphid, melon aphid | 1,2,4          | ++     |
| <i>Apomecyna histrio</i> (Fabricius)      | Coleoptera   | Cerambycidae  | ပင်စည်ထိုးကျိုင်း   | melon stemborer           | 1,2,4,5        | +      |
| <i>Aulacophora foveicollis</i> (Lucas)    | Coleoptera   | Chrysomelidae | ဘူး၊ ဖရုံကျိုင်း    | red pumpkin beetle        | 1,2,3,4        | ++     |
| <i>Bactrocera cucurbitae</i> (Coquillett) | Diptera      | Tephritidae   | သီးထိုးယင်          | melon fly                 | 1,2,3,4,5      | +++    |
| <i>Coridius fuscus</i> (Westwood)         | Hemiptera    | Dinidoridae   | ဂျပ်ဖိုး            | pumpkin bug               | 2              | P      |
| <i>Diaphania indica</i> (Saunders)        | Lepidoptera  | Pyralidae     | ရွက်လိပ်ဖိုး        | pumpkin leaf roller       | 2              | P      |
| <i>Epilachna indica</i> Mulsant           | Coleoptera   | Coccinellidae | ရွက်စုံစားကျိုင်း   | melon beetle              | 1,2,3,4,5      | +      |
| <i>Epilachna 28-punctata</i>              | Coleoptera   | Coccinellidae | ရွက်စုံစားကျိုင်း   | melon beetle              | 1,2,3,4,5      | +      |
| <i>Taeniothrips</i> sp.                   | Thysanoptera | Thripidae     | လှေ့ဖိုး            | gladiolus thrips          | 1,2,4,5        | P      |
| <i>Tetranychus</i> spp.                   | Acarina      | Tetranychidae | မွှားပင်, ကျ        | red spider mite           | 1,2            | +      |
| <i>Thrips palmi</i> Karny                 | Thysanoptera | Thripidae     | လှေ့ဖိုး            | cotton leaf thrips        | 1,2,4,5        | +      |

Key: 1. Gourd; 2 . Pumpkin; 3. Bitter gourd; 4. Cucumber; 5. Melon

Table 11. Arthropod pests of fruits

| Pest                                      | Order       | Family         | Myanmar common name       | English common name       | Plant attacked | Rating |
|---|-------------|----------------|---------------------------|---------------------------|----------------|--------|
| <i>Agrilus citri</i> Thery                | Coleoptera  | Buprestidae    | ရှောက်အခေါက်ထိုးပိုး      | citrus bark borer         | 2              | +      |
| <i>Alcidodes frenatus</i> (Faust)         | Coleoptera  | Curculionidae  | သရက်အညွန့်ထိုးပိုး        | mango shoot weevil        | 1              | +      |
| <i>Aleurocanthus woglumi</i> Ashby        | Hemiptera   | Psyllidae      | ရှောက်ယင်နက်              | citrus blackfly           | 2              | +      |
| <i>Aleurodicus dispersus</i> Russell      | Hemiptera   | Aleyrodidae    | ယင်ဖြူ                    | spiraling whitefly        | 4,5            | +      |
| <i>Ampllypterus panopus</i> (Cramer)      | Lepidoptera | Sphingidae     | စွန်လိပ်ပြာ               | giant hawk moth           | 1,11           | P      |
| <i>Amritodus atkinsoni</i> (Lethierry)    | Hemiptera   | Cicadellidae   | သရက်ဖြူတံပိုး             | mango leafhopper          | 1              | +      |
| <i>Anoplophora versteegii</i> (Ritsema)   | Coleoptera  | Cerambycidae   | ရှောက်ပင်စည်ထိုးပိုး      | citrus stem borer         | 2              | +      |
| <i>Aonidiella aurantii</i> (Maskell)      | Hemiptera   | Diaspididae    | အနီကြေးပိုး               | red scale                 | 2              | P      |
| <i>Aphis gossypii</i> Glover              | Hemiptera   | Aphididae      | ဖြူပိုး                   | cotton aphid, melon aphid | 4,5            | +++    |
| <i>Apriona germari</i> (Hope)             | Coleoptera  | Cerambycidae   | ခူးရင်းပင်စည်ထိုးပိုး     | longhorn stem borer       | 11             | +      |
| <i>Aristobia approximata</i> (Thomson)    | Coleoptera  | Cerambycidae   | ပင်စည်ထိုးပိုး            | teakstem borer            | 1              | +      |
| <i>Attacus atlas</i> (Linnaeus)           | Lepidoptera | Saturniidae    | ဆင်လိပ်ပြာ                | atlas moth                | 1              | P      |
| <i>Aulacaspis tubercularis</i> Newstead   | Hemiptera   | Diaspididae    | အကြေးပိုး                 | mango scale               | 1              | +      |
| <i>Aularches miliaris</i> (Linnaeus)      | Orthoptera  | Pyrgomorphidae | နံ့ကောင်                  | spotted grasshopper       | 6              | +      |
| <i>Bactrocera cucurbitae</i> (Coquillett) | Diptera     | Tephritidae    | သစ်သီးထိုးယင်             | melon fruitfly            | 3              | ++     |
| <i>Bactrocera dorsalis</i> (Hendel)       | Diptera     | Tephritidae    | သစ်သီးထိုးယင်             | oriental fruitfly         | 1,2,4,9        | +++    |
| <i>Batocera rufomaculata</i> (De Geer)    | Coleoptera  | Cerambycidae   | သရက်ပင်စည်ထိုးပိုး        | mango stem borer          | 1,9            | +      |
| <i>Bemisia</i> sp.                        | Hemiptera   | Aleyrodidae    | ယင်ဖြူ                    | white fly                 | 1,4,5          | P      |
| <i>Carpomyia vesuviana</i> Costa          | Diptera     | Tephritidae    | ဖိုးသီးထိုးယင်            | jujube fruitfly           | 11             | P      |
| <i>Ceroplastes ceriferus</i> (Fabricius)  | Hemiptera   | Coccidae       | အဖြူရောင်ကြေးပိုး         | white waxy scale          | 11             | P      |
| <i>Chrysomphalus aonidum</i> (Linnaeus)   | Hemiptera   | Diaspididae    | ခရမ်းရောင်ကြေးပိုး        | purple scale              | 2,4,5          | +      |
| <i>Cosmopolites sordidus</i> (Germar)     | Coleoptera  | Curculionidae  | ငှက်ပျောပင်စည်ထိုးကျိုင်း | banana weevil             | 6              | +++    |
| <i>Cricula trifenestrata</i> Helfer       | Lepidoptera | Saturniidae    | သရက်ခွံကောင်              | mango hairy caterpillar   | 1,4,11         | ++     |
| <i>Deporaus marginatus</i> (Pascoe)       | Coleoptera  | Curculionidae  | သရက်ရွက်စားကျိုင်း        | mango leaf-cutting weevil | 1              | P      |
| <i>Diaphania pyloalis</i> (Walker)        | Lepidoptera | Pyralidae      | ပိုးစာရွက်လိပ်            | mulberry leaf roller      | 11             | P      |
| <i>Diaphorina citri</i> Kuwayana          | Hemiptera   | Psyllidae      | ရှောက်စုတ်စားပိုး         | citrus psyllid            | 2,11           | P      |
| <i>Epepeotes uncinatus</i> Gahan          | Coleoptera  | Cerambycidae   | ပိုးစာပင်စည်ထိုးပိုး      | mulberry stem borer       | 11             | +      |
| <i>Erionota thrax</i> (Linnaeus)          | Lepidoptera | Hesperiidae    | ငှက်ပျောလိပ်ပြာ           | banana skipper            | 6              | P      |
| <i>Eudocima fullonia</i> (Clerck)         | Lepidoptera | Noctuidae      | သစ်သီးလိပ်ပြာ             | fruit piercing moth       | 2,8            | +      |

Key: 1. Mango; 2. Citrus; 3. Musk melon; 4. Guava; 5. Papaya; 6. Banana; 7. Durian; 8. Grape; 9. Cashew; 10. Apples; 11. Others.

Table 11. (cont'd) Arthropod pests of fruits

| Pest   | Order        | Family         | Myanmar common name       | English common name    | Plant attacked | Rating |
|--|--------------|----------------|---------------------------|------------------------|----------------|--------|
| <i>Euproctis fraterna</i> (Moore)              | Lepidoptera  | Lymantriidae   | ရူးမွေးစုတ်               | tussock moth           | 1,2,4,9        | P      |
| <i>Eysarcoris guttiger</i> (Thunberg)          | Hemiptera    | Pentatomidae   | စက်ပြောက်လှိုင်း          | two spotted sesame bug | 1              | P      |
| <i>Ferrisia virgata</i> (Cockerell)            | Hemiptera    | Pseudococcidae | ဒက်ပိုးအကြား              | striped mealy bug      | 1,2,4,10,11    | +      |
| <i>Hippotion celerio</i> (Linnaeus)            | Lepidoptera  | Spingidae      | စပျစ်ရွက်စားရူး           | grape moth             | 8              | P      |
| <i>Hypomeces squamosus</i> (Fabricius)         | Coleoptera   | Curculionidae  | အစိမ်းရောင်ကျိုင်း        | green weevil           | 1,2,8          | P      |
| <i>Idioscopus clypealis</i> (Lethierry)        | Hemiptera    | Cicadellidae   | သရက်ဖြူတ်ပိုး             | mango leafhopper       | 1              | +      |
| <i>Idioscopus nigroclipeatus</i> (Melichar)    | Hemiptera    | Cicadellidae   | သရက်ဖြူတ်ပိုး             | mango flower jassid    | 1              | +      |
| <i>Indarbela quadrinotata</i> (Walker)         | Lepidoptera  | Cossidae       | အခေါက်ထွင်းပိုး           | tree bark moth         | 1,2,9          | P      |
| <i>Kerria lacca</i> (Kerr)                     | Hemiptera    | Kerriidae      | နို့တ်ပိုး                | lac insect             | 1,2,4,9,10,11  | P      |
| <i>Myzus persicae</i> (Sulzer)                 | Hemiptera    | Aphididae      | ပြေ                       | peach aphid            | 10,11          | +      |
| <i>Nephterix piratis</i> (White)               | Lepidoptera  | Pyralidae      | ပင်စည်ထိုးပိုး            | cashew stem borer      | 11             | +      |
| <i>Pseudoceropepes piratis</i> (Meyrick)       | Lepidoptera  | Pyralidae      | သီဟိုသရက်လိပ်ပြာ          | cashew moth            | 9              | +      |
| <i>Odoiporus longicollis</i> (Olivier)         | Coleoptera   | Curculionidae  | ငှက်ပျောပင်စည်ထိုးကျိုင်း | banana stem weevil     | 6              | P      |
| <i>Oecophylla smaragdina</i> (Fabricius)       | Hymenoptera  | Formicidae     | ခါချည်ပုရွက်ဆိတ်          | red tree ant           | 1,2,9,11       | P      |
| <i>Papilio demoleus</i> Linnaeus               | Lepidoptera  | Papilionidae   | ရှောက်သံပုရာလိပ်ပြာ       | lemon butterfly        | 2              | +++    |
| <i>Parlatoria ziziphus</i> (Lucas)             | Hemiptera    | Diaspididae    | ကြေးပိုးနက်               | black scale            | 1,2,10         | +      |
| <i>Pentalonia nigronervosa</i> Coquerel        | Hemiptera    | Aphididae      | ပြေ                       | banana aphid           | 6              | P      |
| <i>Phyllocnistis citrella</i> Stainton         | Lepidoptera  | Gracillariidae | ရှောက်ရွက်ထွင်းပိုး       | citrus leaf miner      | 2              | ++     |
| <i>Phyllocoptruta oleivora</i> (Ashmead)       | Acarina      | Tetranychidae  | မွှားပင်ကူ                | citrus rust mite       | 2              | ++     |
| <i>Planococcus pacificus</i> Cox               | Hemiptera    | Pseudococcidae | ဒက်ပိုး                   | pacific mealy bug      | 11             | +      |
| <i>Plocaederus obesus</i> Gahan                | Coleoptera   | Cerambycidae   | ပင်စည်ထိုးပိုး            | cashew stem borer      | 9              | +      |
| <i>Plocaederus pedestris</i> (White)           | Coleoptera   | Cerambycidae   | သရက်ပင်စည်ထိုးပိုး        | mango stem borer       | 1,9            | +      |
| <i>Pseudoceropepes piratis</i> (Meyrick)       | Lepidoptera  | Pyralidae      | သီဟိုသရက်ဖလံ              | cashew moth            | 9              | +      |
| <i>Pseudodendrothrips ornatiseimus</i> Schmutz | Thysanoptera | Thripidae      | ပိုးစာသရစ်                | mulberry thrips        | 11             | P      |
| <i>Raodiplosis orientalis</i> Felt             | Diptera      | Cecidomyiidae  | သရက်ယင်                   | mango midge            | 1              | P      |
| <i>Rhytidodera simulans</i> (White)            | Coleoptera   | Cerambycidae   | သရက်ကိုင်းထိုးပိုး        | mango branch borer     | 1,9            | +      |
| <i>Scirtothrips dorsalis</i> Hood              | Thysanoptera | Thripidae      | သရစ်                      | chilli thrips          | 2              | ++     |
| <i>Spodoptera litura</i> (Fabricius)           | Lepidoptera  | Noctuidae      | ငမမြောင်တောင်             | cluster caterpillar    | 1,6            | +++    |
| <i>Stephanitis typicus</i> (Distant)           | Hemiptera    | Tingidae       | ငှက်ပျောစာတောင်ကျိုင်း    | banana lace bug        | 6              | P      |
| <i>Syllepte derogata</i> (Fabricius)           | Lepidoptera  | Pyralidae      | ဝါရွက်လိပ်ပိုး            | cotton leafroller      | 7              | +      |

Key: 1. Mango; 2. Citrus; 3. Musk melon; 4. Guava; 5. Papaya; 6. Banana; 7. Durian; 8. Grape; 9. Cashew; 10. Apples; 11. Others.

Table 11. (cont'd) Arthropod pests of fruits

| Pest                                   | Order       | Family         | Myanmar common name | English common name | Plant attacked | Rating |
|--|-------------|----------------|---------------------|---------------------|----------------|--------|
| <i>Tessaratoma papillosa</i> (Drury)   | Hemiptera   | Tessaratomidae | လိုင်ချီးကျိုင်း    | litchi stink bug    | 11             | +      |
| <i>Theretra alecto</i> (Linnaeus)      | Lepidoptera | Sphingidae     | စပျစ်ဖလံ            | grape hawk moth     | 8              | P      |
| <i>Toxoptera citricidus</i> (Kirkaldy) | Hemiptera   | Aphididae      | ရှေ့ကပ်ပြိုင်း      | brown citrus aphid  | 2              | +      |
| <i>Toxoptera odinae</i> (Van der Goot) | Hemiptera   | Aphididae      | သရက်ပြိုင်း         | mango aphid         | 1,9            | +      |
| <i>Xylotrupes gideon</i> (Linnaeus)    | Coleoptera  | Scarabaeidae   | အုန်းကျိုင်း        | coconut beetle      | 9              | ++     |
| <i>Zeuzera coffeae</i> Nietner         | Lepidoptera | Cossidae       | ပင်စည်ထိုးပိုး      | red branch borer    | 2, 11          | +      |

Key: 1. Mango; 2. Citrus; 3. Musk melon; 4. Guava; 5. Papaya; 6. Banana; 7. Durian; 8. Grape; 9. Cashew; 10. Apples; 11. Others.

Table 12. Distribution of arthropod pests

| Pest                            | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|---------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Abidama producta</i>         |                     | P    |            |              | P           | P     |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Acanthoscelides obtectus</i> |                     | ++   | P          | P            | P           | +     | +              |                   |           | P             | +++     | +                  |                    | P               |                      |
| <i>Achaea janata</i>            |                     | P    |            | P            | P           | P     | P              | P                 | P         |               | P       |                    |                    |                 |                      |
| <i>Acherontia styx</i>          |                     | P    |            | +            | P           | P     | +              | P                 | P         |               | ++      |                    | P                  | P               |                      |
| <i>Acheta</i> sp.               | +                   | +    |            | P            | P           | P     | P              |                   |           |               | ++      | P                  |                    | ++              |                      |
| <i>Adoretus birmanus</i>        |                     | P    |            |              |             | P     | P              |                   |           |               | ++      |                    |                    |                 |                      |
| <i>Agrilus citri</i>            |                     | P    |            |              | P           | P     |                | P                 |           |               |         |                    |                    |                 |                      |
| <i>Agrotis ipsilon</i>          |                     | +    | P          | +            | P           | P     | ++             | P                 | +         |               | +       |                    | +                  |                 |                      |
| <i>Agrotis segetum</i>          |                     | P    | P          | P            |             | P     |                | P                 |           | P             | +       |                    | ++                 |                 |                      |
| <i>Alcidodes affaber</i>        |                     |      |            |              |             |       | +              | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Alcidodes frenatus</i>       |                     | P    |            |              | P           | P     |                | P                 | P         | P             |         |                    |                    | P               |                      |
| <i>Aleurocanthus woglumi</i>    |                     |      |            |              | P           | P     |                | P                 |           |               | +       |                    | +                  |                 |                      |
| <i>Aleurodicus destructor</i>   |                     |      |            |              | P           | P     |                | P                 | P         |               | +       |                    |                    |                 |                      |
| <i>Aleurodicus dispersus</i>    |                     |      |            |              |             |       |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Aleurolobus barodensis</i>   |                     |      |            |              | P           |       |                | P                 | P         |               | P       |                    |                    |                 |                      |
| <i>Alissonotum impressicole</i> |                     |      |            | +            | P           |       |                |                   |           |               |         |                    |                    |                 |                      |
| <i>Amplypterus panopus</i>      |                     |      |            |              |             |       |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Amrasca devastans</i>        |                     | +    | P          |              |             | P     | +++            | +++               |           |               | ++      |                    |                    |                 |                      |
| <i>Amrasca</i> sp.              |                     | P    |            |              |             |       | P              | P                 |           |               | +       |                    |                    |                 |                      |
| <i>Amritodus atkinsoni</i>      |                     | P    |            |              | P           | P     | ++             | ++                |           |               | +       |                    | P                  |                 |                      |
| <i>Amsacta albistriga</i>       |                     | P    |            |              |             | P     |                |                   |           |               | P       |                    | P                  | P               |                      |
| <i>Amsacta lactinea</i>         |                     |      |            |              | P           | P     |                |                   |           |               |         |                    |                    |                 |                      |
| <i>Anomala antiqua</i>          |                     |      |            | P            | P           | P     | ++             |                   |           |               | ++      |                    |                    | +               |                      |
| <i>Anomis flava</i>             |                     | P    |            |              |             | P     | P              | P                 |           |               | P       |                    |                    |                 |                      |

+++ = very widespread and very important; ++ = widespread and important; + = important locally; P = present but not important

Table 12. (cont'd) Distribution of arthropod pests

| Pest                           | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|--------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Anoplophora versteegii</i>  |                     | P    | P          | +            | P           | P     |                | P                 |           | P             | +       |                    | ++                 | +               |                      |
| <i>Antigastra catalaunalis</i> |                     | +    | P          |              | P           | P     | ++             | P                 | P         | P             | +       |                    |                    | P               |                      |
| <i>Aonidiella aurantii</i>     |                     |      |            |              |             |       |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Aphis craccivora</i>        | +++                 | +    |            | P            | P           | P     | +++            | P                 | P         | P             | ++      | P                  |                    |                 |                      |
| <i>Aphis fabae</i>             | +++                 | +    |            | P            | P           | P     | P              | P                 |           | P             | +       | P                  | ++                 | ++              | +                    |
| <i>Aphis gossypii</i>          | P                   | ++   |            | P            |             | P     | +++            | +++               | P         | P             | ++      |                    | +                  | P               | ++                   |
| <i>Apomecyna histrio</i>       |                     | P    |            | P            |             |       | P              |                   |           |               |         |                    |                    |                 |                      |
| <i>Apriona germari</i>         |                     |      |            |              |             |       |                |                   | ++        |               |         |                    |                    |                 |                      |
| <i>Approaerema modicella</i>   | P                   | ++   | P          | P            | +           | +     | +++            | ++                | P         | P             | ++      | P                  | ++                 | +               |                      |
| <i>Archips micaceanus</i>      |                     |      |            | P            | +           | P     | P              | P                 |           |               | +       | P                  | P                  |                 |                      |
| <i>Ariadne merione</i>         |                     |      |            |              | P           | P     | P              | P                 |           |               | +       |                    |                    |                 |                      |
| <i>Aristobia approximata</i>   |                     |      |            |              |             |       |                |                   |           |               | +       |                    | +++                |                 |                      |
| <i>Artona catoxantha</i>       |                     |      |            |              | P           | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Aspidiotus destructor</i>   |                     | P    |            |              | P           | P     |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Aspidomorpha indica</i>     |                     |      |            |              |             |       |                | P                 |           |               | +       |                    |                    | P               |                      |
| <i>Athalia lugens</i>          |                     |      |            |              |             |       | ++             |                   | P         |               | P       |                    | P                  |                 |                      |
| <i>Atherigona soccata</i>      |                     |      |            |              |             |       |                | +                 |           |               | +       |                    |                    |                 |                      |
| <i>Atractomorpha crenulata</i> |                     |      |            |              |             | P     |                | P                 |           |               | ++      |                    |                    |                 |                      |
| <i>Attacus atlas</i>           |                     |      |            |              |             |       |                | P                 |           |               | +       |                    |                    | P               |                      |
| <i>Aulacaspis tubercularis</i> |                     | P    |            | P            |             |       | +              | P                 |           |               | +       |                    |                    |                 |                      |
| <i>Aulacophora foveicollis</i> | P                   | P    |            | P            |             | P     | +              | P                 | +         | P             | P       |                    | P                  | P               | +                    |
| <i>Aularches miliaris</i>      |                     | P    |            |              | P           | P     |                |                   |           |               | +       |                    |                    | P               |                      |
| <i>Bactrocera cucurbitae</i>   |                     | P    | P          | +            | P           | P     | ++             | P                 | P         | P             | ++      |                    | ++                 | +               | +                    |
| <i>Bactrocera dorsalis</i>     | P                   | +    | +          | +            |             |       | +              |                   | +         | P             | ++      |                    | +++                | +               | +++                  |
| <i>Bagrada hilaris</i>         |                     | P    |            |              |             | P     | +              | P                 |           |               | P       |                    | P                  |                 |                      |
| <i>Batocera rufomaculata</i>   |                     | P    |            | +            | +           | +     |                |                   | P         | P             | +       |                    | ++                 | P               |                      |

+++ = very widespread and very important; ++ = widespread and important; + = important locally; P = present but not important

Table 12. (cont'd) Distribution of arthropod pests

| Pest                            | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|---------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Bemisia</i> sp.              |                     | P    |            |              |             |       | P              |                   |           |               | +       |                    |                    |                 |                      |
| <i>Bemisia tabaci</i>           |                     |      |            |              | P           | P     | +              | P                 |           |               | +       |                    | P                  |                 |                      |
| <i>Brachytrupes</i> sp.         |                     |      |            |              | P           | P     |                |                   | P         |               | P       |                    |                    |                 |                      |
| <i>Brevennia rehi</i>           |                     |      |            |              | P           | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Brevicoryne brassicae</i>    |                     | ++   |            | P            |             |       | ++             | ++                | P         |               | +       |                    |                    |                 |                      |
| <i>Caliothrips indicus</i>      |                     | P    |            |              | P           | P     | +              | P                 |           |               | P       |                    |                    | P               |                      |
| <i>Callitettix versicolor</i>   |                     |      |            |              | P           |       |                | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Callosobruchus</i> sp.       |                     | P    |            | P            | P           | +     | ++             |                   | P         | P             | ++      | P                  | ++                 |                 | +                    |
| <i>Carpomyia vesuviana</i>      |                     |      |            | +            |             |       |                | ++                |           | P             | +       |                    |                    |                 |                      |
| <i>Ceratovacuna lanigera</i>    |                     |      |            |              | P           | P     | +              | P                 |           |               | P       |                    | P                  |                 |                      |
| <i>Ceroplastes ceriferus</i>    |                     | P    |            |              |             |       | P              |                   |           |               | +       |                    |                    |                 |                      |
| <i>Chilo auricilius</i>         |                     |      |            |              | P           | P     | P              | P                 | P         |               | ++      |                    |                    | P               |                      |
| <i>Chilo infuscatellus</i>      |                     |      |            |              | P           | P     |                | P                 |           |               | +       |                    |                    |                 |                      |
| <i>Chilo polychrysus</i>        |                     |      | P          | P            | P           | P     |                |                   |           |               | ++      | +                  |                    |                 |                      |
| <i>Chilo</i> spp.               |                     | P    |            |              |             |       | +              |                   |           |               | +       |                    |                    | P               |                      |
| <i>Chilo suppressalis</i>       |                     |      |            | P            | P           | P     | +              | P                 |           | P             | ++      |                    |                    |                 |                      |
| <i>Chilo tumidicostalis</i>     |                     | P    | P          |              | P           | P     |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Chrysomphalus aonidum</i>    |                     |      |            |              | P           | P     |                |                   |           | P             | P       |                    |                    |                 |                      |
| <i>Cnaphalocrocis medinalis</i> | P                   | ++   | P          | P            | P           | P     | +              | P                 | ++        | P             | ++      | P                  | P                  | +++             |                      |
| <i>Condica capensis</i>         |                     |      |            | P            | P           |       | P              | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Coptotermes curvignathus</i> |                     | P    |            | P            | P           | P     |                |                   | +         |               | +       |                    |                    |                 |                      |
| <i>Coridius fuscus</i>          |                     | P    |            |              |             | P     |                |                   |           | P             | P       |                    |                    | +               |                      |
| <i>Cosmopolites sordidus</i>    |                     | P    | +          | +            | P           | P     |                |                   | P         | P             | P       |                    |                    |                 |                      |
| <i>Cricula trifenestrata</i>    | ++                  | +    |            |              | P           | P     |                |                   | +         | P             | +       |                    | P                  | +               |                      |
| <i>Crocidolomia pavonana</i>    |                     |      |            | P            |             | P     | P              |                   |           | P             | +       |                    |                    |                 |                      |
| <i>Cylas formicarius</i>        |                     | P    |            |              |             |       |                | P                 | P         |               | P       |                    |                    | P               |                      |

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Table 12. (cont'd) Distribution of arthropod pests

| Pest                                 | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|--------------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Cyrtopeltis tenuis</i>            |                     |      |            |              |             |       |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Deporaus marginatus</i>           |                     |      |            | +            | +           | P     |                |                   |           |               | P       |                    | P                  |                 |                      |
| <i>Diaphania indica</i>              |                     | P    |            | P            |             | P     |                |                   |           |               |         |                    |                    |                 |                      |
| <i>Diaphania pyloalis</i>            |                     |      |            |              | P           |       |                | P                 |           |               |         |                    |                    |                 |                      |
| <i>Diaphorina citri</i>              |                     |      |            | P            | P           | P     |                |                   |           |               | P       |                    | +                  |                 |                      |
| <i>Dicladispa armigera</i>           | +                   | +    |            | P            | P           | P     | +              | +                 | ++        | P             | ++      | P                  | +                  | +++             | +++                  |
| <i>Dorylus orientalis</i>            |                     |      |            | P            |             |       |                |                   |           |               | ++      |                    | P                  |                 |                      |
| <i>Dysdercus cingulatus</i>          |                     | ++   |            |              |             | P     | +++            | P                 |           |               | +       |                    | P                  |                 |                      |
| <i>Earias insulana</i>               |                     | ++   |            |              |             |       | +              | +++               |           |               | +       |                    | +                  |                 |                      |
| <i>Earias vittella</i>               |                     |      |            |              |             |       | ++             | +++               |           |               | +++     |                    |                    |                 |                      |
| <i>Elasmolomus sordidus</i>          |                     | P    |            |              | P           | P     | +              |                   |           |               | +       |                    |                    | +               |                      |
| <i>Empoasca flavescens</i>           | P                   | P    |            | P            | P           | P     | +              |                   |           |               | ++      | P                  |                    | P               |                      |
| <i>Empoasca</i> sp.                  |                     | +    |            |              | P           | P     | ++             | ++                |           |               | +       |                    |                    | P               |                      |
| <i>Epepeotes uncinatus</i>           |                     |      | +          |              |             |       |                | +                 |           |               |         |                    |                    |                 |                      |
| <i>Epilachna indica</i>              |                     | P    | P          | P            |             |       |                |                   |           |               |         |                    |                    | P               |                      |
| <i>Epilachna 28-punctata</i>         |                     | P    |            |              |             |       |                |                   |           |               |         |                    | ++                 |                 |                      |
| <i>Epilachna pusillanima</i>         |                     | P    |            |              |             | P     |                | +                 |           |               | +       |                    |                    |                 |                      |
| <i>Epilachna</i> sp.                 |                     | P    |            | P            | P           |       |                |                   |           |               | P       |                    | P                  |                 |                      |
| <i>Epilachna vigintioctopunctata</i> |                     | P    |            |              |             | P     |                | +                 |           |               | +       |                    |                    |                 |                      |
| <i>Erionota thrax</i>                |                     |      |            |              | P           | P     | P              |                   | P         |               | P       |                    |                    |                 |                      |
| <i>Etiella zinckenella</i>           | +                   | P    | P          | +            | +           | +     | P              | +                 |           | P             | +       |                    | +                  | ++              |                      |
| <i>Eublemma olivacea</i>             | P                   | P    |            | P            |             | P     | P              | P                 |           | P             | +       |                    | P                  | P               |                      |
| <i>Euchrysops cnejus</i>             |                     | P    |            | P            | P           | P     |                |                   | P         |               | +       | P                  |                    | +               |                      |
| <i>Eudocima fullonia</i>             |                     |      |            |              | P           |       |                | P                 |           |               | +       |                    |                    |                 |                      |
| <i>Euproctis fraterna</i>            |                     | P    |            |              |             |       |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Eurydema pulchrum</i>             |                     |      |            |              |             |       |                |                   |           |               | P       |                    |                    |                 |                      |

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Table 12. (cont'd) Distribution of arthropod pests

| Pest                             | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|----------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Euscirtus concinnus</i>       | P                   | P    |            | P            | P           | P     | P              |                   |           |               | P       |                    |                    | +               |                      |
| <i>Exelastis atomosa</i>         |                     |      |            |              | P           | P     |                | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Eysarcoris guttiger</i>       |                     |      |            |              | P           | P     |                |                   |           |               | P       |                    |                    | P               |                      |
| <i>Ferrisia virgata</i>          | P                   | P    | P          |              |             |       |                |                   | P         |               |         |                    | P                  |                 |                      |
| <i>Frankliniella</i> sp.         |                     | P    |            |              |             |       | P              | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Gryllotalpa orientalis</i>    |                     | P    |            | P            | P           | P     | P              |                   | P         | P             | +       |                    | P                  | P               |                      |
| <i>Helicoverpa armigera</i>      | +                   | ++   | P          | +            | P           | P     | +++            | +++               | +         |               | +++     | P                  | +++                | +               | ++                   |
| <i>Helicoverpa assulta</i>       |                     | P    |            |              |             |       |                | +                 |           |               | ++      |                    |                    |                 |                      |
| <i>Hellula undalis</i>           |                     | +    |            |              |             | P     |                |                   |           |               | ++      |                    | P                  |                 |                      |
| <i>Heteroderes lenis</i>         |                     |      |            | P            | P           | P     | +              | +                 |           |               | P       |                    |                    |                 |                      |
| <i>Hippotion celerio</i>         |                     |      |            |              |             |       |                |                   |           |               |         |                    |                    |                 |                      |
| <i>Holotrichia</i> sp.           | +                   | P    |            | P            | P           | P     | ++             | P                 |           |               | ++      |                    | +                  | ++              |                      |
| <i>Hypolixus pica</i>            |                     |      |            |              | P           | P     |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Hypomeces squamosus</i>       |                     |      |            |              | P           | P     |                | P                 |           |               | P       |                    |                    | P               |                      |
| <i>Idioscopus clypealis</i>      |                     | P    |            |              | P           | P     | +              | ++                |           |               | +       |                    |                    |                 |                      |
| <i>Idioscopus nigroclypeatus</i> |                     |      |            |              | P           | P     |                | ++                |           |               | +       |                    |                    |                 |                      |
| <i>Indarbela quadrinotata</i>    | P                   |      |            |              |             |       |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Kerria lacca</i>              |                     |      |            | +            |             |       |                | +                 |           |               |         |                    |                    |                 |                      |
| <i>Kiritshenkella sacchari</i>   |                     |      |            | P            | P           | P     | +              | P                 | P         |               |         |                    |                    | P               |                      |
| <i>Lampides boeticus</i>         |                     | P    |            |              | P           | P     |                |                   |           |               | P       |                    | P                  | P               |                      |
| <i>Leptocorisa acuta</i>         | P                   | ++   |            | ++           | P           | P     | ++             | P                 | +         | P             | ++      | P                  | P                  | +               |                      |
| <i>Leptocorisa oratorius</i>     | P                   | ++   |            | ++           | P           | P     |                | P                 | +         | P             | ++      | P                  |                    |                 |                      |
| <i>Leucinodes orbonalis</i>      |                     | P    | P          |              |             |       | P              | +                 | P         |               |         |                    | ++                 | P               |                      |
| <i>Lipaphis erysimi</i>          |                     | ++   | P          |              |             | P     | P              | ++                |           |               | +       |                    | +                  |                 |                      |
| <i>Macrotermes</i> spp.          |                     | P    | P          | P            | P           | P     | ++             | P                 |           |               | ++      |                    | P                  | P               |                      |
| <i>Marasmia trapezalis</i>       |                     |      |            |              |             |       |                |                   |           |               | P       |                    |                    |                 |                      |

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Table 12. (cont'd) Distribution of arthropod pests

| Pest                         | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Maruca vitrata</i>        |                     | ++   |            | P            | P           | P     | +              | +++               |           |               | +       |                    | +                  | +               | +                    |
| <i>Medythia suturalis</i>    |                     | P    |            | P            | P           | P     |                | P                 |           |               | P       |                    | P                  |                 |                      |
| <i>Melanagromyza obtusa</i>  |                     |      |            | P            | P           | P     |                | P                 |           | P             | P       | P                  | +                  |                 |                      |
| <i>Melanaphis sacchari</i>   |                     |      |            |              |             | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Melanitis ismene</i>      | P                   |      |            | P            | P           | P     | P              |                   | P         |               | P       | P                  | P                  | P               |                      |
| <i>Mylabris pustulata</i>    |                     |      |            |              | P           | P     | +              | P                 |           |               |         | P                  |                    |                 |                      |
| <i>Mythimna separata</i>     | +                   | +    | P          | +            | P           | P     | ++             | +                 | +         |               | ++      | +                  | +                  | +               |                      |
| <i>Mythimna sp.</i>          |                     | P    |            |              |             |       |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Myzus persicae</i>        |                     | P    | P          |              |             | P     | +              |                   |           |               | +       |                    | +                  | P               |                      |
| <i>Nephoterix piratis</i>    |                     |      |            |              |             |       |                |                   | +         |               |         |                    |                    |                 |                      |
| <i>Nephotettix virescens</i> |                     | +    |            | P            | +           | P     | ++             | +                 | P         |               | +       | P                  | P                  | P               |                      |
| <i>Nezara viridula</i>       |                     | P    |            | P            | P           | P     | ++             | P                 |           |               | P       | P                  | P                  | P               |                      |
| <i>Nilaparvata lugens</i>    | ++                  | +    | P          | P            | P           | P     | +              | ++                |           |               | ++      |                    | P                  | ++              |                      |
| <i>Odoiporus longicollis</i> |                     | P    | +          | P            | P           |       |                | P                 | +         |               | +       |                    |                    | P               |                      |
| <i>Odontotermes sp.</i>      |                     | P    |            | P            | P           | P     | +              | P                 |           |               | ++      | +                  | +                  | +               |                      |
| <i>Oecophylla smaragdina</i> | P                   | P    |            | P            |             | P     |                |                   | P         |               | +       |                    | P                  | P               |                      |
| <i>Omiodes indicata</i>      |                     |      |            | P            | P           | P     | P              | P                 | P         | P             | +       | +                  |                    |                 |                      |
| <i>Ophiomyia phaseoli</i>    | P                   | +    |            | P            | P           | P     | ++             |                   | +         |               |         | +                  | P                  | +               |                      |
| <i>Opisina arenosella</i>    |                     |      |            |              | P           | P     | P              |                   | +         |               | P       |                    |                    |                 |                      |
| <i>Orgyia turbata</i>        |                     | P    | P          | P            | +           | +     | +              | P                 |           | P             | +       |                    |                    | +               |                      |
| <i>Orosius orientalis</i>    |                     |      | P          | P            | P           | P     | ++             | P                 |           |               | +       |                    |                    | P               |                      |
| <i>Orseolia andropoginis</i> |                     |      |            |              |             | P     |                | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Orseolia oryzae</i>       | +                   | ++   |            | ++           | P           | +     |                | P                 |           | P             | +       | +++                | +                  | +               |                      |
| <i>Oryctes rhinoceros</i>    |                     | P    |            |              | P           | P     | P              |                   | P         | P             | P       |                    |                    |                 |                      |
| <i>Ostrinia furnacalis</i>   |                     | P    | P          |              |             |       | ++             |                   | P         | P             | +       |                    |                    | P               |                      |
| <i>Oxya hyla</i>             | P                   | P    |            | P            | P           | P     |                |                   | P         |               | P       | P                  | P                  |                 |                      |

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Table 12. (cont'd) Distribution of arthropod pests

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|--|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Papilio demoleus</i>                | P                   | P    |            | P            | P           |       | ++             | ++                | P         | P             | P       |                    | P                  | +               |                      |
| <i>Paratonyx stagnalis</i>             | +++                 | ++   | P          | +            | +           | P     | +              | P                 | +++       | P             | P       | ++                 | P                  | +++             | ++                   |
| <i>Parasa lepida</i>                   |                     |      |            |              |             | P     | P              |                   |           |               | P       |                    |                    |                 |                      |
| <i>Parlatoria ziziphus</i>             |                     |      |            |              |             |       |                |                   |           |               |         |                    | ++                 |                 |                      |
| <i>Parnara guttatus</i>                | P                   |      | P          | P            | P           | P     |                | P                 | P         | P             | P       | P                  |                    | P               |                      |
| <i>Pectinophora gossypiella</i>        |                     | ++   |            |              |             | P     | ++             | +++               |           |               | ++      | P                  | P                  |                 |                      |
| <i>Pelopidas mathias</i>               | P                   | P    |            | P            | P           | P     | P              | P                 | P         | P             | P       |                    | P                  |                 |                      |
| <i>Pentalonia nigronervosa</i>         |                     | P    |            |              |             |       |                | P                 |           | P             | +       |                    |                    |                 |                      |
| <i>Phodoryctis caerulea</i>            |                     | P    |            | P            | P           | P     |                |                   |           |               | P       |                    | +                  | P               |                      |
| <i>Phthorimaea operculella</i>         |                     |      |            | P            |             | P     | P              | P                 |           |               | P       |                    | ++                 |                 |                      |
| <i>Phycita infusella</i>               |                     | P    |            |              |             | P     |                | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Phyllocnistis citrella</i>          | P                   | P    |            | +            | P           | P     | +              | ++                |           | P             | +       |                    | +++                | +               |                      |
| <i>Phyllocoptruta oleivora</i>         |                     | P    |            |              |             |       |                |                   | P         |               | +       |                    | +++                |                 |                      |
| <i>Phyllotreta</i> sp.                 |                     |      |            |              |             |       |                | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Phyllotreta striolata</i>           |                     | P    |            |              |             |       | P              | P                 |           |               | P       |                    | P                  |                 |                      |
| <i>Pieris canidia</i>                  |                     |      |            | +            |             | P     | P              | ++                | P         |               | P       |                    | +                  |                 |                      |
| <i>Pieris rapae</i>                    |                     |      |            |              |             | P     | P              | ++                |           | P             |         |                    |                    |                 |                      |
| <i>Planococcus pacificus</i>           |                     |      |            |              |             |       |                |                   | +         |               | +       |                    | +++                |                 |                      |
| <i>Plocaederus obesus</i>              | P                   |      |            |              |             |       |                |                   |           | P             | +       |                    |                    |                 |                      |
| <i>Plocaederus pedestris</i>           |                     | P    | +          |              | +           | +     | +              | ++                |           |               |         |                    |                    |                 |                      |
| <i>Plutella xylostella</i>             |                     | +++  |            | P            |             | +     | ++             | +++               |           | P             | ++      |                    |                    | P               |                      |
| <i>Polyphagotarsonemus latus</i>       |                     | +    |            | P            | P           | P     | P              |                   |           |               | P       |                    | +++                | P               |                      |
| <i>Potamon dayanum</i>                 | P                   |      |            | P            | P           | P     |                |                   | P         |               | P       |                    | P                  |                 |                      |
| <i>Psalis pennatulata</i>              | P                   | P    |            | P            | P           | P     | P              |                   | P         |               | +       | +                  | P                  | P               |                      |
| <i>Pseudococcus</i> sp.                |                     |      |            |              |             | P     | +              | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Pseudodendrothrips ornatissimus</i> |                     |      | P          |              |             | P     |                | P                 |           |               |         |                    |                    |                 |                      |

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|-----------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Pyrilla perpusilla</i>         |                     | P    |            |              | P           | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Raodiplosis orientalis</i>     |                     |      |            |              | P           |       |                |                   |           | P             | P       |                    |                    |                 |                      |
| <i>Recilia dorsalis</i>           |                     |      |            | P            | P           | P     | P              | +                 |           |               | ++      |                    |                    |                 |                      |
| <i>Rhopalosiphum maidis</i>       |                     | P    |            |              |             | P     | P              |                   | P         |               | P       |                    |                    | P               |                      |
| <i>Rhynchophorus ferrugineus</i>  |                     | P    |            |              | +           | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Rhytidodera simulans</i>       | P                   | P    |            |              |             |       |                | ++                | +         | P             | +       |                    | +                  | +               |                      |
| <i>Scirpophaga excerptalis</i>    |                     | +    |            | P            | P           | P     | +              | P                 | P         |               | +       |                    |                    |                 |                      |
| <i>Scirpophaga incertulus</i>     | ++                  | ++   | P          | +            | P           | +     | +++            | +++               | +++       | P             | ++      | +                  | ++                 | +               | ++                   |
| <i>Scirpophaga magnella</i>       |                     | +    |            | P            | P           |       |                | P                 |           |               |         |                    |                    |                 |                      |
| <i>Scirtothrips dorsalis</i>      |                     | P    |            |              | P           | P     | P              | ++                |           |               | +       |                    | ++                 |                 |                      |
| <i>Scotinophara</i> sp.           | P                   |      |            |              | P           | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Sesamia inferens</i>           |                     | P    | P          | +            | P           | P     | P              | P                 |           |               | +       |                    | P                  |                 |                      |
| <i>Sogatella furcifera</i>        | +                   | +    |            |              | P           | P     | ++             | ++                | ++        |               | ++      |                    | ++                 | ++              |                      |
| <i>Sphenarches caffer</i>         |                     |      |            |              | P           | P     | +              |                   |           |               | P       |                    | P                  |                 |                      |
| <i>Sphenoptera ghoshi</i>         |                     | P    |            |              | P           | P     |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Spilarctia obliqua</i>         | P                   | +    | P          | P            | +           | P     | P              | P                 | P         | P             | +       | +                  | P                  | P               |                      |
| <i>Spodoptera litura</i>          | ++                  | ++   | +          | +            | P           | P     | +              | P                 | +         |               | ++      | P                  | +                  | +++             | ++                   |
| <i>Spodoptera mauritia</i>        | +                   | +    | P          | +            | P           | P     |                | P                 |           | P             | ++      | P                  | +                  | +++             |                      |
| <i>Stenachroia elongella</i>      |                     |      |            |              |             |       | +              |                   | +         |               | P       |                    |                    |                 |                      |
| <i>Stenchaetothrips biformis</i>  | +                   | P    |            | P            | P           | P     |                |                   | P         |               | P       |                    |                    | P               |                      |
| <i>Stephanitis typicus</i>        |                     |      |            | P            | P           | P     |                | P                 |           |               | +       |                    |                    | P               |                      |
| <i>Syllepte derogata</i>          |                     | P    |            |              |             |       | +              |                   |           |               | +       |                    | P                  |                 |                      |
| <i>Taeniothrips</i> sp.           |                     | P    |            |              |             |       |                |                   |           |               | P       |                    |                    | P               |                      |
| <i>Tarbinskiellus portentosus</i> |                     | +    |            | P            | P           | P     | +              | P                 | P         |               | P       |                    |                    | +               |                      |
| <i>Tesseratoma papillosa</i>      |                     |      |            |              |             |       |                |                   | P         |               |         | P                  | +                  |                 |                      |
| <i>Tetranychus</i> spp.           | P                   | +    |            | P            |             |       | +              | +                 |           |               | +       |                    |                    |                 |                      |

+++ = very widespread and very important; ++ = widespread and important; + = important locally; P = present but not important

Table 12. (cont'd) Distribution of arthropod pests

| Pest                            | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|---------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Theretra alecto</i>          |                     |      |            |              |             |       |                | P                 |           |               |         |                    |                    |                 |                      |
| <i>Thrips flavus</i>            |                     | P    |            |              |             | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Thrips palmi</i>             |                     | P    |            |              |             |       |                | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Thrips tabaci</i>            |                     | P    |            |              |             | P     |                | ++                |           |               | +       |                    | ++                 |                 |                      |
| <i>Thysanoplosia orichalcea</i> |                     | P    |            | P            | P           | P     | P              |                   | P         |               | +       |                    | P                  | P               |                      |
| <i>Toxoptera citricidus</i>     |                     | P    | P          | P            | P           |       |                | P                 |           |               | +       |                    | P                  | P               |                      |
| <i>Toxoptera odinae</i>         |                     | P    |            | P            | P           | P     |                | ++                |           |               | P       |                    |                    | P               |                      |
| <i>Trabala vishnou</i>          |                     |      |            |              | P           |       | P              |                   |           |               | +       |                    |                    |                 |                      |
| <i>Trialeurodes ricini</i>      |                     |      |            |              |             |       | P              |                   |           |               | P       |                    |                    |                 |                      |
| <i>Trichoplosia ni</i>          | P                   | ++   |            | P            |             | P     |                | ++                | P         | P             | P       |                    | P                  | P               |                      |
| <i>Trochorrhopalus sacchari</i> |                     |      |            |              | P           | P     |                |                   |           |               | P       |                    |                    | P               |                      |
| <i>Urentius hystericellus</i>   |                     |      |            | P            |             |       |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Varuna litterata</i>         | +                   |      |            |              | P           |       |                |                   | P         | P             |         |                    |                    | +               |                      |
| <i>Xylotrupes gideon</i>        |                     | P    |            | P            | +           | P     |                | P                 |           | P             | +       |                    | P                  |                 |                      |
| <i>Zeuzera coffeae</i>          |                     |      |            |              | P           |       |                |                   | P         |               |         |                    |                    | P               |                      |

+++ = very widespread and very important; ++ = widespread and important; + = important locally; P = present but not important

Table 13. Relative importance of major arthropod pests of agriculture

| Pest  | Family        | 2<br>Rice | 3<br>Pulses | 4<br>Oil | 5<br>Sugar | 6<br>Cotton | 7<br>Maize | 8<br>Cruc. | 9<br>Sol. | 10<br>Cucu | 11<br>Fruit | Total | Order |
|---|---------------|-----------|-------------|----------|------------|-------------|------------|------------|-----------|------------|-------------|-------|-------|
| <i>Abidama producta</i> (Walker)                  | Cercopidae    |           |             |          | P          |             |            |            |           |            |             |       |       |
| <i>Acanthoscelides obtectus</i> (Say)             | Bruchidae     |           | 2           |          |            |             |            |            |           |            |             | 2     |       |
| <i>Achaea janata</i> (Linnaeus)                   | Noctuidae     |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Acherontia styx</i> (Westwood)                 | Sphingidae    |           |             | P        |            |             |            |            | 1         |            |             | 1     |       |
| <i>Acheta</i> sp.                                 | Gryllidae     |           | 4           |          |            |             |            |            |           |            |             | 4     | 19 =  |
| <i>Adoretus birmanus</i> Arrow                    | Scarabaeidae  |           |             |          |            |             | P          |            |           |            |             |       |       |
| <i>Agrilus citri</i> Thery                        | Buprestidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Agrotis ipsilon</i> (Hufnagel)                 | Noctuidae     |           | 4           |          |            | 1           | 2          | 2          | 2         |            |             | 11    | 3     |
| <i>Agrotis segetum</i> (Denis and Schiffermuller) | Noctuidae     |           |             |          |            |             | 2          | 3          | 2         |            |             | 7     | 8 =   |
| <i>Alcidodes affaber</i> (Aurivillius)            | Curculionidae |           |             |          |            | P           |            |            |           |            |             |       |       |
| <i>Alcidodes frenatus</i> (Faust)                 | Curculionidae |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Aleurocanthus woglumi</i> Ashby                | Aleyrodidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Aleurodicus destructor</i> Mackie              | Aleyrodidae   |           | P           |          |            |             |            |            |           |            |             |       |       |
| <i>Aleurodicus dispersus</i> Russell              | Aleyrodidae   |           |             |          |            |             |            |            |           |            | 2           | 2     |       |
| <i>Aleurolobus barodensis</i> (Maskell)           | Aleyrodidae   |           |             |          | P          |             |            |            |           |            |             |       |       |
| <i>Alissonotum impressicole</i> Arrow             | Scarabaeidae  |           |             |          | 1          |             |            |            |           |            |             | 1     |       |
| <i>Amplypterus panopus</i> (Cramer)               | Sphingidae    |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Amrasca devastans</i> (Distant)                | Cicadellidae  |           |             |          |            | 1           |            |            |           |            |             | 1     |       |
| <i>Amrasca</i> sp.                                | Cicadellidae  |           |             |          |            |             | 1          |            | 1         |            |             | 2     |       |
| <i>Amritodus atkinsoni</i> (Lethierry)            | Cicadellidae  |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Amsacta albistriga</i> (Walker)                | Arctiidae     |           |             |          |            |             | 2          |            |           |            |             | 2     |       |
| <i>Amsacta lactinea</i> (Cramer)                  | Arctiidae     |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Anomala antiqua</i> (Gyllenhal)                | Scarabaeidae  |           |             | 2        | 1          |             |            |            |           |            |             | 3     | 30 =  |
| <i>Anomis flava</i> (Fabricius)                   | Noctuidae     |           |             |          |            | P           |            |            |           |            |             |       |       |
| <i>Anoplophora versteegii</i> (Ritsema)           | Cerambycidae  |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Antigastra catalaunalis</i> (Duponchel)        | Pyralidae     |           |             | 1        |            |             |            |            |           |            |             | 1     |       |
| <i>Aonidiella aurantii</i> (Maskell)              | Diaspididae   |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Aphis craccivora</i> Koch                      | Aphididae     |           | 3           | 1        |            |             |            |            |           |            |             | 4     | 19 =  |

Table 13. (cont'd) Relative importance of major arthropod pests of agriculture

| Pest                                       | Family         | 2<br>Rice | 3<br>Pulses | 4<br>Oil | 5<br>Sugar | 6<br>Cotton | 7<br>Maize | 8<br>Cruc. | 9<br>Sol. | 10<br>Cucu | 11<br>Fruit | Total | Order |
|--|----------------|-----------|-------------|----------|------------|-------------|------------|------------|-----------|------------|-------------|-------|-------|
| <i>Aphis fabae</i> (Scopoli)               | Aphididae      |           | 4           |          |            |             |            |            |           |            |             | 4     | 19 =  |
| <i>Aphis gossypii</i> Glover               | Aphididae      |           |             |          |            | 1           |            |            | 2         | 3          | 2           | 8     | 6 =   |
| <i>Apomecyna histrio</i> (Fabricius)       | Cerambycidae   |           |             |          |            |             |            |            |           | 4          |             | 4     | 19 =  |
| <i>Apriona germari</i> (Hope)              | Cerambycidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Aproaerema modicella</i> (Deventer)     | Gelechiidae    |           | 3           | 1        |            |             |            |            |           |            |             | 4     | 19 =  |
| <i>Archips micaceanus</i> (Walker)         | Tortricidae    |           | 2           | P        |            |             |            |            |           |            |             | 2     |       |
| <i>Ariadne merione</i> (Cramer)            | Nymphalidae    |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Aristobia approximator</i> (Thomson)    | Cerambycidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Artona catoxantha</i> (Hampson)         | Zygaenidae     |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Aspidiotus destructor</i> Signoret      | Diaspididae    |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Aspidomorpha indica</i> Boheman         | Chrysomelidae  |           |             |          |            |             |            |            | P         |            |             |       |       |
| <i>Athalia lugens</i> (Klug)               | Tenthredinidae |           |             |          |            |             |            | 3          |           |            |             | 3     | 30 =  |
| <i>Atherigona soccata</i> Rondani          | Muscidae       |           |             |          |            |             | 1          |            |           |            |             | 1     |       |
| <i>Atractomorpha crenulata</i> (Fabricius) | Pyrgomorphidae |           |             |          |            |             |            |            | P         |            |             |       |       |
| <i>Attacus atlas</i> (Linnaeus)            | Saturniidae    |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Aulacaspis tubercularis</i> Newstead    | Diaspididae    |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Aulacophora foveicollis</i> (Lucas)     | Chrysomelidae  |           |             |          |            |             |            |            |           | 4          |             | 4     | 19 =  |
| <i>Aularches miliaris</i> (Linnaeus)       | Pyrgomorphidae |           |             | P        |            |             |            |            |           |            | 1           | 1     |       |
| <i>Bactrocera cucurbitae</i> (Coquillett)  | Tephritidae    |           |             |          |            |             |            |            | 1         | 5          | 1           | 7     | 8 =   |
| <i>Bactrocera dorsalis</i> (Hendel)        | Tephritidae    |           |             |          |            |             |            |            | 3         |            | 4           | 7     | 8 =   |
| <i>Bagrada hilaris</i> (Burmeister)        | Pentatomidae   |           |             |          |            |             |            | 3          | 2         |            |             | 5     | 13 =  |
| <i>Batocera rufomaculata</i> (De Geer)     | Cerambycidae   |           |             |          |            |             |            |            |           |            | 2           | 2     |       |
| <i>Bemisia</i> sp.                         | Aleyrodidae    |           |             |          |            |             |            |            |           |            | 3           | 3     | 30 =  |
| <i>Bemisia tabaci</i> (Gennadius)          | Aleyrodidae    |           |             | 1        |            | 1           |            |            | 2         |            |             | 4     | 19 =  |
| <i>Brachytrupes</i> sp.                    | Gryllidae      |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Brevennia rehi</i> (Lindinger)          | Pseudococcidae | P         |             |          |            |             |            |            |           |            |             |       |       |
| <i>Brevicoryne brassicae</i> (Linnaeus)    | Aphididae      |           |             |          |            |             |            | 2          |           |            |             | 2     |       |
| <i>Caliothrips indicus</i> (Bagnall)       | Thripidae      |           |             | 1        |            |             |            |            |           |            |             | 1     |       |
| <i>Callitettix versicolor</i> (Fabricius)  | Cercopidae     |           |             |          | P          |             |            |            |           |            |             |       |       |
| <i>Callosobruchus</i> sp.                  | Bruchidae      |           | 3           |          |            |             |            |            |           |            |             | 3     | 30 =  |

Table 13. (cont'd) Relative importance of major arthropod pests of agriculture

| Pest                                     | Family          | 2<br>Rice | 3<br>Pulses | 4<br>Oil | 5<br>Sugar | 6<br>Cotton | 7<br>Maize | 8<br>Cruc. | 9<br>Sol. | 10<br>Cucu | 11<br>Fruit | Total | Order |
|--|-----------------|-----------|-------------|----------|------------|-------------|------------|------------|-----------|------------|-------------|-------|-------|
| <i>Carpomyia vesuviana</i> Costa         | Tephritidae     |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Ceratovacuna lanigera</i> (Zehntner)  | Aphididae       |           |             |          | P          |             |            |            |           |            |             |       |       |
| <i>Ceroplastes ceriferus</i> (Fabricius) | Coccidae        |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Chilo auricilius</i> (Dudgeon)        | Pyralidae       |           |             |          | 1          |             |            |            |           |            |             | 1     |       |
| <i>Chilo infuscatellus</i> Snellen       | Pyralidae       |           |             |          | 1          |             |            |            |           |            |             | 1     |       |
| <i>Chilo polychrysus</i> (Meyrick)       | Pyralidae       | 1         |             |          |            |             |            |            |           |            |             | 1     |       |
| <i>Chilo</i> sp.                         | Pyralidae       |           |             |          |            |             | 1          |            |           |            |             | 1     |       |
| <i>Chilo suppressalis</i> (Walker)       | Pyralidae       | 1         |             |          | 1          |             | 1          |            |           |            |             | 3     | 30 =  |
| <i>Chilo tumidicostalis</i> (Hampson)    | Pyralidae       |           |             |          | 1          |             |            |            |           |            |             | 1     |       |
| <i>Chrysomphalus aonidum</i> (Linnaeus)  | Diaspididae     |           |             | P        |            |             |            |            |           |            | 3           | 3     | 30 =  |
| <i>Cnaphalocrocis medinalis</i> (Guenee) | Pyralidae       | 1         |             |          |            |             |            |            |           |            |             | 1     |       |
| <i>Condica capensis</i> Guenee           | Noctuidae       |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Coptotermes curvignathus</i> Holmgren | Rhinotermitidae |           |             | 3        |            |             |            |            |           |            |             | 3     | 30 =  |
| <i>Coridius fuscus</i> (Westwood)        | Dinidoridae     |           |             |          |            |             |            |            |           | P          |             |       |       |
| <i>Cosmopolites sordidus</i> (Germar)    | Curculionidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Cricula trifenestrata</i> (Helfer)    | Saturniidae     |           |             |          |            |             |            |            |           |            | 3           | 3     | 30 =  |
| <i>Crocidolomia pavonana</i> (Fabricius) | Pyralidae       |           |             |          |            |             |            | 3          |           |            |             | 3     | 30 =  |
| <i>Cylas formicarius</i> (Fabricius)     | Apionidae       |           |             |          |            |             |            |            | P         |            |             |       |       |
| <i>Cyrtopeltis tenuis</i> (Reuter)       | Miridae         |           |             |          |            |             |            |            | P         |            |             |       |       |
| <i>Deporaus marginatus</i> (Pascoe)      | Curculionidae   |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Diaphania indica</i> (Saunders)       | Pyralidae       |           |             |          |            |             |            |            |           | P          |             |       |       |
| <i>Diaphania pyloalis</i> (Walker)       | Pyralidae       |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Diaphorina citri</i> Kuwayama         | Psyllidae       |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Dicladispa armigera</i> (Olivier)     | Chrysomelidae   | 1         |             |          |            |             |            |            |           |            |             | 1     |       |
| <i>Dorylus orientalis</i> Westwood       | Formicidae      |           |             |          |            |             |            | P          |           |            |             |       |       |
| <i>Dysdercus cingulatus</i> (Fabricius)  | Pyrrhocoridae   |           |             |          |            | 1           |            |            |           |            |             | 1     |       |
| <i>Earias insulana</i> (Boisduval)       | Noctuidae       |           |             |          |            | 1           |            |            |           |            |             | 1     |       |
| <i>Earias vittella</i> (Fabricius)       | Noctuidae       |           |             |          |            | 1           |            |            |           |            |             | 1     |       |
| <i>Elasmolomus sordidus</i> (Fabricius)  | Lygaeidae       |           |             | 1        |            |             |            |            |           |            |             | 1     |       |
| <i>Empoasca flavescens</i> (Fabricius)   | Cicadellidae    |           | 1           |          |            |             |            | P          |           |            |             | 1     |       |

Table 12. (cont'd) Distribution of arthropod pests

| Pest                              | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|-----------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Pyrilla perpusilla</i>         |                     | P    |            |              | P           | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Raodiplosis orientalis</i>     |                     |      |            |              | P           |       |                |                   |           | P             | P       |                    |                    |                 |                      |
| <i>Recilia dorsalis</i>           |                     |      |            | P            | P           | P     | P              | +                 |           |               | ++      |                    |                    |                 |                      |
| <i>Rhopalosiphum maidis</i>       |                     | P    |            |              |             | P     | P              |                   | P         |               | P       |                    |                    | P               |                      |
| <i>Rhynchophorus ferrugineus</i>  |                     | P    |            |              | +           | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Rhytidodera simulans</i>       | P                   | P    |            |              |             |       |                | ++                | +         | P             | +       |                    | +                  | +               |                      |
| <i>Scirpophaga excerptalis</i>    |                     | +    |            | P            | P           | P     | +              | P                 | P         |               | +       |                    |                    |                 |                      |
| <i>Scirpophaga incertulus</i>     | ++                  | ++   | P          | +            | P           | +     | +++            | +++               | +++       | P             | ++      | +                  | ++                 | +               | ++                   |
| <i>Scirpophaga magnella</i>       |                     | +    |            | P            | P           |       |                | P                 |           |               |         |                    |                    |                 |                      |
| <i>Scirtothrips dorsalis</i>      |                     | P    |            |              | P           | P     | P              | ++                |           |               | +       |                    | ++                 |                 |                      |
| <i>Scotinophara</i> sp.           | P                   |      |            |              | P           | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Sesamia inferens</i>           |                     | P    | P          | +            | P           | P     | P              | P                 |           |               | +       |                    | P                  |                 |                      |
| <i>Sogatella furcifera</i>        | +                   | +    |            |              | P           | P     | ++             | ++                | ++        |               | ++      |                    | ++                 | ++              |                      |
| <i>Sphenarches caffer</i>         |                     |      |            |              | P           | P     | +              |                   |           |               | P       |                    | P                  |                 |                      |
| <i>Sphenoptera ghoshi</i>         |                     | P    |            |              | P           | P     |                |                   |           |               | +       |                    |                    |                 |                      |
| <i>Spilarctia obliqua</i>         | P                   | +    | P          | P            | +           | P     | P              | P                 | P         | P             | +       | +                  | P                  | P               |                      |
| <i>Spodoptera litura</i>          | ++                  | ++   | +          | +            | P           | P     | +              | P                 | +         |               | ++      | P                  | +                  | +++             | ++                   |
| <i>Spodoptera mauritia</i>        | +                   | +    | P          | +            | P           | P     |                | P                 |           | P             | ++      | P                  | +                  | +++             |                      |
| <i>Stenachroia elongella</i>      |                     |      |            |              |             |       | +              |                   | +         |               | P       |                    |                    |                 |                      |
| <i>Stenchaetothrips biformis</i>  | +                   | P    |            | P            | P           | P     |                |                   | P         |               | P       |                    |                    | P               |                      |
| <i>Stephanitis typicus</i>        |                     |      |            | P            | P           | P     |                | P                 |           |               | +       |                    |                    | P               |                      |
| <i>Syllepte derogata</i>          |                     | P    |            |              |             |       | +              |                   |           |               | +       |                    | P                  |                 |                      |
| <i>Taeniothrips</i> sp.           |                     | P    |            |              |             |       |                |                   |           |               | P       |                    |                    | P               |                      |
| <i>Tarbinskiellus portentosus</i> |                     | +    |            | P            | P           | P     | +              | P                 | P         |               | P       |                    |                    | +               |                      |
| <i>Tesseratoma papillosa</i>      |                     |      |            |              |             |       |                |                   | P         |               |         | P                  | +                  |                 |                      |
| <i>Tetranychus</i> spp.           | P                   | +    |            | P            |             |       | +              | +                 |           |               | +       |                    |                    |                 |                      |

+++ = very widespread and very important; ++ = widespread and important; + = important locally; P = present but not important

Table 12. (cont'd) Distribution of arthropod pests

| Pest                            | Ayeyarwady Division | Bago | Chin State | Kachin State | Kayin State | Kayal | Magwe Division | Mandalay Division | Mon State | Rakhine State | Sagaing | Shan State (North) | Shan State (South) | Yangon Division | Tanintharyi Division |
|---------------------------------|---------------------|------|------------|--------------|-------------|-------|----------------|-------------------|-----------|---------------|---------|--------------------|--------------------|-----------------|----------------------|
| <i>Theretra alecto</i>          |                     |      |            |              |             |       |                | P                 |           |               |         |                    |                    |                 |                      |
| <i>Thrips flavus</i>            |                     | P    |            |              |             | P     |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Thrips palmi</i>             |                     | P    |            |              |             |       |                | P                 |           |               | P       |                    |                    |                 |                      |
| <i>Thrips tabaci</i>            |                     | P    |            |              |             | P     |                | ++                |           |               | +       |                    | ++                 |                 |                      |
| <i>Thysanoplusia orichalcea</i> |                     | P    |            | P            | P           | P     | P              |                   | P         |               | +       |                    | P                  | P               |                      |
| <i>Toxoptera citricidus</i>     |                     | P    | P          | P            | P           |       |                | P                 |           |               | +       |                    | P                  | P               |                      |
| <i>Toxoptera odinae</i>         |                     | P    |            | P            | P           | P     |                | ++                |           |               | P       |                    |                    | P               |                      |
| <i>Trabala vishnou</i>          |                     |      |            |              | P           |       | P              |                   |           |               | +       |                    |                    |                 |                      |
| <i>Trialeurodes ricini</i>      |                     |      |            |              |             |       | P              |                   |           |               | P       |                    |                    |                 |                      |
| <i>Trichoplusia ni</i>          | P                   | ++   |            | P            |             | P     |                | ++                | P         | P             | P       |                    | P                  | P               |                      |
| <i>Trochorrhopalus sacchari</i> |                     |      |            |              | P           | P     |                |                   |           |               | P       |                    |                    | P               |                      |
| <i>Urentius hystericellus</i>   |                     |      |            | P            |             |       |                |                   |           |               | P       |                    |                    |                 |                      |
| <i>Varuna litterata</i>         | +                   |      |            |              | P           |       |                |                   | P         | P             |         |                    |                    | +               |                      |
| <i>Xylotrupes gideon</i>        |                     | P    |            | P            | +           | P     |                | P                 |           | P             | +       |                    | P                  |                 |                      |
| <i>Zeuzera coffeae</i>          |                     |      |            |              | P           |       |                |                   | P         |               |         |                    |                    | P               |                      |

+++ = very widespread and very important; ++ = widespread and important; + = important locally; P = present but not important

Table 13. Relative importance of major arthropod pests of agriculture

| Pest  | Family        | 2<br>Rice | 3<br>Pulses | 4<br>Oil | 5<br>Sugar | 6<br>Cotton | 7<br>Maize | 8<br>Cruc. | 9<br>Sol. | 10<br>Cucu | 11<br>Fruit | Total | Order |
|---|---------------|-----------|-------------|----------|------------|-------------|------------|------------|-----------|------------|-------------|-------|-------|
| <i>Abidama producta</i> (Walker)                  | Cercopidae    |           |             |          | P          |             |            |            |           |            |             |       |       |
| <i>Acanthoscelides obtectus</i> (Say)             | Bruchidae     |           | 2           |          |            |             |            |            |           |            |             | 2     |       |
| <i>Achaea janata</i> (Linnaeus)                   | Noctuidae     |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Acherontia styx</i> (Westwood)                 | Sphingidae    |           |             | P        |            |             |            |            | 1         |            |             | 1     |       |
| <i>Acheta</i> sp.                                 | Gryllidae     |           | 4           |          |            |             |            |            |           |            |             | 4     | 19 =  |
| <i>Adoretus birmanus</i> Arrow                    | Scarabaeidae  |           |             |          |            |             | P          |            |           |            |             |       |       |
| <i>Agrilus citri</i> Thery                        | Buprestidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Agrotis ipsilon</i> (Hufnagel)                 | Noctuidae     |           | 4           |          |            | 1           | 2          | 2          | 2         |            |             | 11    | 3     |
| <i>Agrotis segetum</i> (Denis and Schiffermuller) | Noctuidae     |           |             |          |            |             | 2          | 3          | 2         |            |             | 7     | 8 =   |
| <i>Alcidodes affaber</i> (Aurivillius)            | Curculionidae |           |             |          |            | P           |            |            |           |            |             |       |       |
| <i>Alcidodes frenatus</i> (Faust)                 | Curculionidae |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Aleurocanthus woglumi</i> Ashby                | Aleyrodidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Aleurodicus destructor</i> Mackie              | Aleyrodidae   |           | P           |          |            |             |            |            |           |            |             |       |       |
| <i>Aleurodicus dispersus</i> Russell              | Aleyrodidae   |           |             |          |            |             |            |            |           |            | 2           | 2     |       |
| <i>Aleurolobus barodensis</i> (Maskell)           | Aleyrodidae   |           |             |          | P          |             |            |            |           |            |             |       |       |
| <i>Alissonotum impressicole</i> Arrow             | Scarabaeidae  |           |             |          | 1          |             |            |            |           |            |             | 1     |       |
| <i>Amplypterus panopus</i> (Cramer)               | Sphingidae    |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Amrasca devastans</i> (Distant)                | Cicadellidae  |           |             |          |            | 1           |            |            |           |            |             | 1     |       |
| <i>Amrasca</i> sp.                                | Cicadellidae  |           |             |          |            |             | 1          |            | 1         |            |             | 2     |       |
| <i>Amritodus atkinsoni</i> (Lethierry)            | Cicadellidae  |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Amsacta albistriga</i> (Walker)                | Arctiidae     |           |             |          |            |             | 2          |            |           |            |             | 2     |       |
| <i>Amsacta lactinea</i> (Cramer)                  | Arctiidae     |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Anomala antiqua</i> (Gyllenhal)                | Scarabaeidae  |           |             | 2        | 1          |             |            |            |           |            |             | 3     | 30 =  |
| <i>Anomis flava</i> (Fabricius)                   | Noctuidae     |           |             |          |            | P           |            |            |           |            |             |       |       |
| <i>Anoplophora versteegii</i> (Ritsema)           | Cerambycidae  |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Antigastra catalaunalis</i> (Duponchel)        | Pyralidae     |           |             | 1        |            |             |            |            |           |            |             | 1     |       |
| <i>Aonidiella aurantii</i> (Maskell)              | Diaspididae   |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Aphis craccivora</i> Koch                      | Aphididae     |           | 3           | 1        |            |             |            |            |           |            |             | 4     | 19 =  |

Table 13. (cont'd) Relative importance of major arthropod pests of agriculture

| Pest                                       | Family         | 2<br>Rice | 3<br>Pulses | 4<br>Oil | 5<br>Sugar | 6<br>Cotton | 7<br>Maize | 8<br>Cruc. | 9<br>Sol. | 10<br>Cucu | 11<br>Fruit | Total | Order |
|--|----------------|-----------|-------------|----------|------------|-------------|------------|------------|-----------|------------|-------------|-------|-------|
| <i>Aphis fabae</i> (Scopoli)               | Aphididae      |           | 4           |          |            |             |            |            |           |            |             | 4     | 19 =  |
| <i>Aphis gossypii</i> Glover               | Aphididae      |           |             |          |            | 1           |            |            | 2         | 3          | 2           | 8     | 6 =   |
| <i>Apomecyna histrio</i> (Fabricius)       | Cerambycidae   |           |             |          |            |             |            |            |           | 4          |             | 4     | 19 =  |
| <i>Apriona germari</i> (Hope)              | Cerambycidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Aproaerema modicella</i> (Deventer)     | Gelechiidae    |           | 3           | 1        |            |             |            |            |           |            |             | 4     | 19 =  |
| <i>Archips micaceanus</i> (Walker)         | Tortricidae    |           | 2           | P        |            |             |            |            |           |            |             | 2     |       |
| <i>Ariadne merione</i> (Cramer)            | Nymphalidae    |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Aristobia approximator</i> (Thomson)    | Cerambycidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Artona catoxantha</i> (Hampson)         | Zygaenidae     |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Aspidiotus destructor</i> Signoret      | Diaspididae    |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Aspidomorpha indica</i> Boheman         | Chrysomelidae  |           |             |          |            |             |            |            | P         |            |             |       |       |
| <i>Athalia lugens</i> (Klug)               | Tenthredinidae |           |             |          |            |             |            | 3          |           |            |             | 3     | 30 =  |
| <i>Atherigona soccata</i> Rondani          | Muscidae       |           |             |          |            |             | 1          |            |           |            |             | 1     |       |
| <i>Atractomorpha crenulata</i> (Fabricius) | Pyrgomorphidae |           |             |          |            |             |            |            | P         |            |             |       |       |
| <i>Attacus atlas</i> (Linnaeus)            | Saturniidae    |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Aulacaspis tubercularis</i> Newstead    | Diaspididae    |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Aulacophora foveicollis</i> (Lucas)     | Chrysomelidae  |           |             |          |            |             |            |            |           | 4          |             | 4     | 19 =  |
| <i>Aularches miliaris</i> (Linnaeus)       | Pyrgomorphidae |           |             | P        |            |             |            |            |           |            | 1           | 1     |       |
| <i>Bactrocera cucurbitae</i> (Coquillett)  | Tephritidae    |           |             |          |            |             |            |            | 1         | 5          | 1           | 7     | 8 =   |
| <i>Bactrocera dorsalis</i> (Hendel)        | Tephritidae    |           |             |          |            |             |            |            | 3         |            | 4           | 7     | 8 =   |
| <i>Bagrada hilaris</i> (Burmeister)        | Pentatomidae   |           |             |          |            |             |            | 3          | 2         |            |             | 5     | 13 =  |
| <i>Batocera rufomaculata</i> (De Geer)     | Cerambycidae   |           |             |          |            |             |            |            |           |            | 2           | 2     |       |
| <i>Bemisia</i> sp.                         | Aleyrodidae    |           |             |          |            |             |            |            |           |            | 3           | 3     | 30 =  |
| <i>Bemisia tabaci</i> (Gennadius)          | Aleyrodidae    |           |             | 1        |            | 1           |            |            | 2         |            |             | 4     | 19 =  |
| <i>Brachytrupes</i> sp.                    | Gryllidae      |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Brevennis rehi</i> (Lindinger)          | Pseudococcidae | P         |             |          |            |             |            |            |           |            |             |       |       |
| <i>Brevicoryne brassicae</i> (Linnaeus)    | Aphididae      |           |             |          |            |             |            | 2          |           |            |             | 2     |       |
| <i>Caliothrips indicus</i> (Bagnall)       | Thripidae      |           |             | 1        |            |             |            |            |           |            |             | 1     |       |
| <i>Callitettix versicolor</i> (Fabricius)  | Cercopidae     |           |             |          | P          |             |            |            |           |            |             |       |       |
| <i>Callosobruchus</i> sp.                  | Bruchidae      |           | 3           |          |            |             |            |            |           |            |             | 3     | 30 =  |

Table 13. (cont'd) Relative importance of major arthropod pests of agriculture

| Pest                                     | Family          | 2<br>Rice | 3<br>Pulses | 4<br>Oil | 5<br>Sugar | 6<br>Cotton | 7<br>Maize | 8<br>Cruc. | 9<br>Sol. | 10<br>Cucu | 11<br>Fruit | Total | Order |
|--|-----------------|-----------|-------------|----------|------------|-------------|------------|------------|-----------|------------|-------------|-------|-------|
| <i>Carpomyia vesuviana</i> Costa         | Tephritidae     |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Ceratovacuna lanigera</i> (Zehntner)  | Aphididae       |           |             |          | P          |             |            |            |           |            |             |       |       |
| <i>Ceroplastes ceriferus</i> (Fabricius) | Coccidae        |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Chilo auricilius</i> (Dudgeon)        | Pyralidae       |           |             |          | 1          |             |            |            |           |            |             | 1     |       |
| <i>Chilo infuscatellus</i> Snellen       | Pyralidae       |           |             |          | 1          |             |            |            |           |            |             | 1     |       |
| <i>Chilo polychrysus</i> (Meyrick)       | Pyralidae       | 1         |             |          |            |             |            |            |           |            |             | 1     |       |
| <i>Chilo</i> sp.                         | Pyralidae       |           |             |          |            |             | 1          |            |           |            |             | 1     |       |
| <i>Chilo suppressalis</i> (Walker)       | Pyralidae       | 1         |             |          | 1          |             | 1          |            |           |            |             | 3     | 30 =  |
| <i>Chilo tumidicostalis</i> (Hampson)    | Pyralidae       |           |             |          | 1          |             |            |            |           |            |             | 1     |       |
| <i>Chrysomphalus aonidum</i> (Linnaeus)  | Diaspididae     |           |             | P        |            |             |            |            |           |            | 3           | 3     | 30 =  |
| <i>Cnaphalocrocis medinalis</i> (Guenee) | Pyralidae       | 1         |             |          |            |             |            |            |           |            |             | 1     |       |
| <i>Condica capensis</i> Guenee           | Noctuidae       |           |             | P        |            |             |            |            |           |            |             |       |       |
| <i>Coptotermes curvignathus</i> Holmgren | Rhinotermitidae |           |             | 3        |            |             |            |            |           |            |             | 3     | 30 =  |
| <i>Coridius fuscus</i> (Westwood)        | Dinidoridae     |           |             |          |            |             |            |            |           | P          |             |       |       |
| <i>Cosmopolites sordidus</i> (Germar)    | Curculionidae   |           |             |          |            |             |            |            |           |            | 1           | 1     |       |
| <i>Cricula trifenestrata</i> (Helfer)    | Saturniidae     |           |             |          |            |             |            |            |           |            | 3           | 3     | 30 =  |
| <i>Crocidolomia pavonana</i> (Fabricius) | Pyralidae       |           |             |          |            |             |            | 3          |           |            |             | 3     | 30 =  |
| <i>Cylas formicarius</i> (Fabricius)     | Apionidae       |           |             |          |            |             |            |            | P         |            |             |       |       |
| <i>Cyrtopeltis tenuis</i> (Reuter)       | Miridae         |           |             |          |            |             |            |            | P         |            |             |       |       |
| <i>Deporaus marginatus</i> (Pascoe)      | Curculionidae   |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Diaphania indica</i> (Saunders)       | Pyralidae       |           |             |          |            |             |            |            |           | P          |             |       |       |
| <i>Diaphania pyloalis</i> (Walker)       | Pyralidae       |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Diaphorina citri</i> Kuwayama         | Psyllidae       |           |             |          |            |             |            |            |           |            | P           |       |       |
| <i>Dicladispa armigera</i> (Olivier)     | Chrysomelidae   | 1         |             |          |            |             |            |            |           |            |             | 1     |       |
| <i>Dorylus orientalis</i> Westwood       | Formicidae      |           |             |          |            |             |            | P          |           |            |             |       |       |
| <i>Dysdercus cingulatus</i> (Fabricius)  | Pyrrhocoridae   |           |             |          |            | 1           |            |            |           |            |             | 1     |       |
| <i>Earias insulana</i> (Boisduval)       | Noctuidae       |           |             |          |            | 1           |            |            |           |            |             | 1     |       |
| <i>Earias vittella</i> (Fabricius)       | Noctuidae       |           |             |          |            | 1           |            |            |           |            |             | 1     |       |
| <i>Elasmolomus sordidus</i> (Fabricius)  | Lygaeidae       |           |             | 1        |            |             |            |            |           |            |             | 1     |       |
| <i>Empoasca flavescens</i> (Fabricius)   | Cicadellidae    |           | 1           |          |            |             |            | P          |           |            |             | 1     |       |

Table 14 Ranking of arthropod pests scoring 3+ or more

In this table, the rating (total number of +s) for each species (derived from Table 13) is used to arrange the 46 highest scoring (3+ or more) arthropod pests in decreasing order of importance. This is probably the best single measure of overall importance and can be used to help in establishing priorities for attempts at control. However, careful consideration should also be given to the 23 pests scoring 2+ in a single crop only, since this indicates that they are widespread and important in their particular crop. For example, the exotic diamondback moth *Plutella xylostella* is rated 2+ for crucifers (its only rating). It is undoubtedly sufficiently important for crucifers to be considered very seriously as a target for a biological control project.

This is because of successful biological control of this pest in a number of countries, including some in Southeast Asia. Another very important factor that should be taken into account is the value of the crop, or crops, affected by the pest. Relevant information is provided in Table 19, giving area and production figures for various crops in Myanmar. In this context, however, it is necessary not to underestimate the importance of the crop to the homegrower and consumer and omit that value, an aspect that is generally poorly recognised, if at all, in official statistics.

**ဇယား (၁၄) အဆင့် ၃+ နှင့်အထက် အင်းဆက်ဖျက်ပိုးများ သတ်မှတ်ခြင်း**

ဤဇယားသည် အင်းဆက်မျိုးစိပ် တစ်ခုချင်းအလိုက် အရေးပါပုံကို စုစုပေါင်း (+) လက္ခဏာများဖြင့် ခွဲခြားသတ်မှတ်ရာ ဇယား (၁၃) အပေါ် အခြေခံ၍ အင်းဆက်မျိုးစိပ် (၄၆) ခုအနက် အဆင့် ၃+ နှင့် အထက် ရရှိသည့် အင်းဆက်မျိုးစိပ်များကို ခွဲထုတ်၍ အရေးကြီးမှုအဆင့်အရ များရာမှနည်းရာသို့ စဉ်ထားပါသည်။ မည်သည့်အင်းဆက်ဖျက်ပိုးများကို ဦးစားပေးကာကွယ်နှိမ်နင်းသင့်သည်ကို စိစစ်ရွေးချယ်ရာ၌ မြေပြင်၍တိုင်းတာနိုင်သည့် အကောင်းဆုံးနည်းဖြစ်နိုင်ပါသည်။ သို့သော် သီးနှံတစ်ခုတည်းတွင် ကျရောက်၍ အဆင့် ၂+ ရှိသည့် အင်းဆက်မျိုးစိပ် (၂၃) ခုကိုလည်း စဉ်းစားရန် လိုအပ်ပါသည်။ ဤသီးနှံတွင် ပျံ့နှံ့စွာအရေးပါပုံရှိကြောင်းပြသနေခြင်းကြောင့် ဖြစ်ပါသည်။ ဥပမာ-ဂေါ်ဖိစိန်ကွက်ဖလံသည် မုံညင်း၊ ဂေါ်ဖိသီးနှံတွင် အဆင့် ၂+ သတ်မှတ်ထားခြင်း ဖြစ်ပါသည်။ ထို့ကြောင့် ဂေါ်ဖိမုံညင်း မျိုးနွယ်ဝင် သီးနှံများအတွက် ဇီဝကာကွယ်နှိမ်နင်းရေးစီမံကိန်း ချမှတ်ဆောင်ရွက်သင့်ပါသည်။ ဤအင်းဆက်ဖျက်ပိုးကို တိုင်းပြည်များစွာနှင့် အရှေ့တောင်အာရှတိုင်းပြည်များတွင် ဇီဝနည်းဖြင့် အောင်မြင်စွာ နှိမ်နင်းနိုင်ပြီ ဖြစ်ပါသည်။ ထည့်သွင်းစဉ်းစားသင့်သည့် အခြားအချက်သည် ဖျက်ပိုးကြောင့် ပျက်စီးသည့် သီးနှံပင်များ၏ကာလတန်ဖိုးဖြစ်ပါသည်။ ဤအချက်နှင့် ဆက်နွယ်နေသည့် အကြောင်းအရာများကို ဇယား(၁၅) ဖြင့် သီးနှံအလိုက် မြန်မာနိုင်ငံတွင် စိုက်ပျိုးစေရိယာ၊ ကုန်ထုတ်လုပ်မှု ကိန်းဂဏန်းများကို ဖော်ပြထားပါသည်။ စားသုံးသူနှင့် ကိုယ်ပိုင်စိုက်ပျိုးသူများအတွက် တန်ဖိုး ရှိမှုကိုပါ ထည့်သွင်းစဉ်းစားသင့်ပါသည်။

| Order | Species                      | Score | Order | Species                           | Score |
|-------|------------------------------|-------|-------|-----------------------------------|-------|
| 1     | <i>Spodoptera litura</i>     | 18+   | 13    | <i>Ferrisia virgata</i>           | 5+    |
| 2     | <i>Helicoverpa armigera</i>  | 14+   |       | <i>Myzus persicae</i>             |       |
| 3     | <i>Agrotis ipsilon</i>       | 11+   |       | <i>Polyphagotarsonemus latus</i>  |       |
| 4     | <i>Spilarctia obliqua</i>    | 10+   | 19    | <i>Acheta sp.</i>                 | 4+    |
| 5     | <i>Thrips palmi</i>          | 9+    |       | <i>Aphis craccivora</i>           |       |
| 6     | <i>Aphis gossypii</i>        | 8+    |       | <i>Aphis fabae</i>                |       |
|       | <i>Odontotermes sp.</i>      |       |       | <i>Apomecyna histrio</i>          |       |
| 8     | <i>Agrotis segetum</i>       | 7+    |       | <i>Apoaerema modicella</i>        |       |
|       | <i>Bactrocera cucurbitae</i> |       |       | <i>Aulacophora foveicollis</i>    |       |
|       | <i>Bactrocera dorsalis</i>   |       |       | <i>Bemisia tabaci</i>             |       |
|       | <i>Scirtothrips dorsalis</i> |       |       | <i>Empoasca sp.</i>               |       |
| 12    | <i>Nezara viridula</i>       | 6+    |       | <i>Ophiomyia phaseoli</i>         |       |
| 13    | <i>Bagrada hilaris</i>       | 5+    |       | <i>Sesamia inferens</i>           |       |
|       | <i>Epilachna indica</i>      |       |       | <i>Tarbinskiellus portentosus</i> |       |
|       | <i>Epilachna 28 punctata</i> |       |       |                                   |       |

Table 14(cont'd) Ranking of arthropod pests scoring 3+ or more

| Order | Species                         | Score | Order | Species                      | Score |
|-------|---------------------------------|-------|-------|------------------------------|-------|
| 30    | <i>Anomala antiqua</i>          | 3+    | 30    | <i>Hellula undalis</i>       | 3+    |
|       | <i>Athalia lugens</i>           |       |       | <i>Macrotermes spp.</i>      |       |
|       | <i>Bemisia sp.</i>              |       |       | <i>Medythia suturalis</i>    |       |
|       | <i>Callosobruchus sp.</i>       |       |       | <i>Mythimna separata</i>     |       |
|       | <i>Chilo suppressalis</i>       |       |       | <i>Parlatoria ziziphus</i>   |       |
|       | <i>Chrysomphalus aonidum</i>    |       |       | <i>Phyllotreta striolata</i> |       |
|       | <i>Coptotermes curvignathus</i> |       |       | <i>Tetranychus spp.</i>      |       |
|       | <i>Cricula trifenestrata</i>    |       |       | <i>Thrips flavus</i>         |       |
|       | <i>Crocidolomia pavonana</i>    |       |       |                              |       |

Table 15 Checklist of preferred names of arthropod pests

| Preferred Name                    | Previous Name                            |
|-----------------------------------|--|
| <i>Acanthoscelides obtectus</i>   | Use for <i>Bruchus obsoletus</i>         |
| <i>Amplypterus panopus</i>        | Use for <i>Compsogene panopus</i>        |
| <i>Amritodus atkinsoni</i>        | Use for <i>Idiocerus atkinsoni</i>       |
| <i>Artona catoxantha</i>          | Use for <i>Brachartona catoxantha</i>    |
| <i>Bactrocera cucurbitae</i>      | Use for <i>Dacus cucurbitae</i>          |
| <i>Bactrocera dorsalis</i>        | Use for <i>Dacus dorsalis</i>            |
| <i>Callosobruchus analis</i>      | Use for <i>Bruchus analis</i>            |
| <i>Callosobruchus chinensis</i>   | Use for <i>Bruchus chinensis</i>         |
| <i>Condica capensis</i>           | Use for <i>Perigea capensis</i>          |
| <i>Crocidolomia pavonana</i>      | Use for <i>Crocidolomia binotalis</i>    |
| <i>Cyrtopeltis tenuis</i>         | Use for <i>Nesidiocoris tenuis</i>       |
| <i>Deporaus marginatus</i>        | Use for <i>Eugnamptus marginatus</i>     |
| <i>Diaphania indica</i>           | Use for <i>Glyphodes indica</i>          |
| <i>Diaphania pyloalis</i>         | Use for <i>Glyphodes pyloalis</i>        |
| <i>Elasmolomus sordidus</i>       | Use for <i>Aphanus sordidus</i>          |
| <i>Epilachna pusillanima</i>      | Use for <i>Epilachna dodecastigma</i>    |
| <i>Eudocima fullonia</i>          | Use for <i>Othreis fullonia</i>          |
| <i>Helicoverpa armigera</i>       | Use for <i>Heliothis armigera</i>        |
| <i>Hypolixus pica</i>             | Use for <i>Lixus brachyrrhinus</i>       |
| <i>Maruca vitrata</i>             | Use for <i>Maruca testulalis</i>         |
| <i>Methydia suturalis</i>         | Use for <i>Luperodes suturalis</i>       |
| <i>Nephotettix virescens</i>      | Use for <i>Nephotettix bipunctulatus</i> |
| <i>Omiodes indicata</i>           | Use for <i>Hedylepta indica</i>          |
| <i>Opiomyza phaseoli</i>          | Use for <i>Agromyza phaseoli</i>         |
| <i>Orosius orientalis</i>         | Use for <i>Orosius albicinctus</i>       |
| <i>Orseolia andropogonis</i>      | Use for <i>Contarinia andropogonis</i>   |
| <i>Paraponyx stagnalis</i>        | Use for <i>Nymphula depunctalis</i>      |
| <i>Parasa lepida</i>              | Use for <i>Latoia lepida</i>             |
| <i>Phodoryctis caerulea</i>       | Use for <i>Acrocerops caerulea</i>       |
| <i>Psalis pennatulata</i>         | Use for <i>Dasychira securis</i>         |
| <i>Pseudoceroprepes piratis</i>   | Use for <i>Nephoterix piratis</i>        |
| <i>Spilarctia obliqua</i>         | Use for <i>Diacrisia obliqua</i>         |
| <i>Stenchaetothrips biformis</i>  | Use for <i>Baliothrips biformis</i>      |
| <i>Tarbinskiellus portentosus</i> | Use for <i>Brachytrupes portentosus</i>  |
| <i>Thysanoplusia orichalcea</i>   | Use for <i>Plusia orichalcea</i>         |
| <i>Urentius hystricellus</i>      | Use for <i>Urentius echinus</i>          |

Table 16. Weeds of transplanted lowland rice

| Scientific name               | Family         | English name                                 | Myanmar common name         | Rating |
|-------------------------------|----------------|--|-----------------------------|--------|
| <i>Alternanthera sessilis</i> | Amaranthaceae  | sessile joy weed                             | ပုစွန်စာ                    | +      |
| <i>Cyperus brevifolius</i>    | Cyperaceae     | Mullumbimby couch                            | မြက်မုံညှင်းရွက်တို         | P      |
| <i>Cyperus compactus</i>      | Cyperaceae     |  | မြက်မုံညှင်းအလုံး           | +      |
| <i>Cyperus compressus</i>     | Cyperaceae     |  | မြက်မုံညှင်းအပြား           | +      |
| <i>Cyperus difformis</i>      | Cyperaceae     | small flowered umbrella plant                | မြက်မုံညှင်းအစိမ်း          | +++    |
| <i>Cyperus iria</i>           | Cyperaceae     | umbrella sedge, rice flat sedge              | မြက်မုံညှင်းအဝါ             | +++    |
| <i>Echinochloa colona</i>     | Poaceae        | jungle rice, awnless barnyard grass          | ဝမ်းဘဲစာမြက်                | +++    |
| <i>Echinochloa crus-galli</i> | Poaceae        | barnyard grass, watergrass                   | ဘဲစာမြက်၊ မြက်သီး၊ မြက်ချို | +++    |
| <i>Eclipta prostrata</i>      | Asteraceae     | white head, false daisy                      | ကြိတ်မှန်                   | P      |
| <i>Eichhornia crassipes</i>   | Pontederiaceae | water hyacinth, water orchid                 | ဗေဒါ                        | ++     |
| <i>Enydra fluctuans</i>       | Asteraceae     |  | ကနဖော့                      |        |
| <i>Fimbristylis dichotoma</i> | Cyperaceae     | fimbristylis                                 | မြက်ကွမ်းသီးကြီး            | ++     |
| <i>Fimbristylis miliacea</i>  | Cyperaceae     | lesser fimbristylis, grass-like fimbristylis | မြက်ကွမ်းသီးလေး             | +++    |
| <i>Ipomoea aquatica</i>       | Convolvulaceae | swampy morning glory                         | ရေကန်စွန်း                  | +      |
| <i>Leersia hexandra</i>       | Poaceae        | swamp rice grass, southern cutgrass          | သမန်းမြက်                   | +      |
| <i>Leptochloa chinensis</i>   | Poaceae        | red sprangle top                             | ဒေါင်းမြီးပျံ               | +++    |
| <i>Ludwigia adscendens</i>    | Onagraceae     | creeping water primose                       | ရေကညွတ်                     | +      |
| <i>Ludwigia hyssopifolia</i>  | Onagraceae     | primose willow                               | ပေါင်းလေးညှင်း              | +++    |
| <i>Marsilea minuta</i>        | Marsileaceae   | water clover                                 | မှိုနုတို                   | ++     |
| <i>Monochoria vaginalis</i>   | Pontederiaceae | monochoria, pickerel weed                    | ကတောက်ဆတ်                   | +++    |
| <i>Oryza rufipogon</i>        | Poaceae        | wild red rice                                | ဒေါင်းစပါး                  | ++     |
| <i>Panicum repens</i>         | Poaceae        | torpedo grass, panicum couch                 | မြက်ကြိမ်                   | +      |
| <i>Pistia stratiotes</i>      | Araceae        | water lettuce                                | ရေလေဝ်                      | P      |
| <i>Scirpus grossus</i>        | Cyperaceae     | greater club rush                            | ဝက်လာ                       | ++     |
| <i>Scirpus juncoides</i>      | Cyperaceae     |  | တလိုင်းခေါင်းမြက်           | +      |
| <i>Sphenoclea zeylanica</i>   | Sphenocleaceae | goose weed                                   | လယ်ပတူ                      | +++    |
| <i>Spilanthes filicaulis</i>  | Asteraceae     |  | ဗိစပ်                       | +      |
| <i>Typha angustifolia</i>     | Typhaceae      | lesser reedmace, narrow leaved cattail       | ရှင်နွယ်လုံး                | +      |

Species composition: Grass = 6 spp; Broadleaved = 13 spp; Cyperus = 9 spp

Table 17. Weeds of upland rice in Myanmar

| Scientific name   | Family         | English name  | Myanmar common name            | Rating |
|---|----------------|---|--------------------------------|--------|
| <i>Amaranthus spinosus</i>  | Amaranthaceae  | spiny amaranth  | ဟင်းနုနွယ်ဆူးပေါက်             | +++    |
| <i>Amaranthus viridis</i>   | Amaranthaceae  | slender amaranth  | တောဟင်းနုနွယ်                  | ++     |
| <i>Bidens pilosa</i>  | Asteraceae     | hairy beggar ticks  | နေကြာကလေး ၊ မုဆိုးမလုံ         | +      |
| <i>Boerhavia diffusa</i>  | Nyctaginaceae  | red spiderling  | ပရနွေဝါနီ                      | +      |
| <i>Boerhavia erecta</i>   | Nyctaginaceae  | erect spiderling  | ပရနွေဝါပင်ထောင်                | +      |
| <i>Borreria laevis</i>  | Rubiaceae      | button weed   | ချိုးခြေထောက်                  | +      |
| <i>Cardiospermum halicacabum</i>  | Sapindaceae    | balloon vine, winter cherry                               | ကုလားမျက်စေ့                   | P      |
| <i>Celosia argentea</i>   | Amaranthaceae  | celosia   | ကြက်မောက်ဖြူ                   | +      |
| <i>Chloris barbata</i>  | Poaceae        | swollen finger grass                                      | မြက်ခရာ                        | +      |
| <i>Cleome viscosa</i>   | Capparaceae    | wild cassia   | ဟင်းဂလာဝါ                      | +      |
| <i>Commelina benghalensis</i>   | Commelinaceae  | wandering jew, tropical spider wort                       | ဝက်ကြွပ်                       | ++     |
| <i>Commelina diffusa</i>  | Commelinaceae  | spreading day flower                                      | ဝက်ကြွပ်                       | ++     |
| <i>Convolvulus arvensis</i>   | Convolvulaceae | European bindweed, field bindweed                         | မက္ကဆီပက်ပေါင်း၊ ကောက်ရိုးနွယ် | +      |
| <i>Crotalaria striata</i>   | Papilionaceae  | striped crotolaria  | တောပိုက်ဆံ                     | P      |
| <i>Cyperus compressus</i>   | Cyperaceae     |   | မြက်မုံညှင်းအပြား              | +      |
| <i>Cyperus iria</i>   | Cyperaceae     | umbrella sedge, rice flat sedge                           | မြက်မုံညှင်းအဝါ                | +++    |
| <i>Cyperus rotundus</i>   | Cyperaceae     | rice flat sedge   | မြက်မုံညှင်းဥနက်               | +++    |
| <i>Dactyloctenium aegyptium</i>   | Poaceae        | crowfoot grass, coast button grass, Egyptian finger grass | လေးစွမြက်                      | +      |
| <i>Digitaria ciliaris</i>   | Poaceae        | tropical crabgrass, summer grass, finger grass            | လက်သဲခွမြက်                    | ++     |
| <i>Digitaria setigera</i>   | Poaceae        |   | လက်သဲခွမြက်                    | ++     |
| <i>Echinochloa colona</i>   | Poaceae        | awnless barnyard grass, jungle rice                       | ဝမ်းဘဲစာမြက်                   | +++    |
| <i>Eleusine indica</i>  | Poaceae        | goose grass, bull grass, wire grass                       | ဆင်ငိုမြက်                     | +++    |
| <i>Eragrostis atrovirens</i>  | Poaceae        | wiry love grass   | ကြိုးကြာမြက်                   | P      |
| <i>Euphorbia hirta</i>  | Euphorbiaceae  | garden spurge, snake weed                                 | ကျွဲကျောင်းမှင်စေး             | +      |
| <i>Gomphrena celosioides</i>  | Amaranthaceae  | gomphrena   | တောကြက်မောက်ကလေး               | ++     |
| <i>Hyptis suaveolens</i>  | Lamiaceae      | bush tea, wild spikenard                                  | ပင်စိမ်းရိုင်း                 | P      |
| <i>Ipomoea triloba</i>  | Convolvulaceae | pink convolvulus, three-lobe morning glory                | ကန်စွန်းနွယ်                   | P      |
| <i>Leucas linifolia</i>   | Lamiaceae      | leucas  | ပင်ကူထိပ်ပိတ်                  | +      |
| <i>Mimosa invisa</i>  | Mimosaceae     | giant sensitive plant                                     | ထိကရုန်းကြီး                   | +      |
| Species composition: Grass = 9 spp; Cyperus = 3 spp; Broadleaved = 27 spp |                |   |                                |        |

Table 17. (cont'd) Weeds of upland rice in Myanmar

| Scientific name   | Family           | English name                           | Myanmar common name | Rating |
|---|------------------|--|---------------------|--------|
| <i>Mimosa pudica</i>  | Mimosaceae       | sensitive plant                        | ထိကရုန်း            | + +    |
| <i>Oxalis latifolia</i>   | Oxalidaceae      | oxalis, pink shamrock                  | မှိုချဉ်            | P      |
| <i>Passiflora foetida</i>   | Passifloraceae   | red fruit passion flower               | ခြင်းကြားသီးပင်     | P      |
| <i>Phyllanthus fraternus</i>  | Euphorbiaceae    | niruri                                 | စာကလေးစီး           | +      |
| <i>Physalis angulata</i>  | Solanaceae       | wild cape gooseberry                   | ဘောက်ပင်            | P      |
| <i>Portulaca oleracea</i>   | Portulacaceae    | common purslane                        | သံပုရစ်             | +      |
| <i>Saccharum spontaneum</i>   | Poaceae          | saccharum                              | ကိုင်း              | + +    |
| <i>Setaria geniculata</i>   | Poaceae          | knotroot foxtail, slender pigeon grass | ခွေးမြီးပုတ်        | +      |
| <i>Scoparia dulcis</i>  | Scrophulariaceae | sweet broom weed, scoparia weed        | ဒန္နသုခ             | +      |
| <i>Tridax procumbens</i>  | Asteraceae       | tridax, coat button                    | တပင်ရွှေထီး         | P      |
| Species composition: Grass = 9 spp; Cyperus = 3 spp; Broadleaved = 27 spp |                  |  |                     |        |

Table 18. Weeds of Myanmar

| Scientific Name  | Family                      | English common name                   | Myanmar common name               | Principal crop attacked                    | Rating |
|--|-----------------------------|---------------------------------------|-----------------------------------|--|--------|
| <i>Abutilon indicum</i> (L.) Sweet                         | Malvaceae                   | Indian lantern flower                 | ဇောက်ခွေး                         | pea, cotton, upland crops                  | +      |
| <i>Achyranthes aspera</i> L.                               | Amaranthaceae               | devil's horse whip                    | ကြက်မောက်ဆူးပျံ                   | pigeon pea, rice                           | +      |
| <i>Aeschynomene americana</i> L.                           | Fabaceae<br>(Papilionaceae) | joint vetch                           |                                   | upland crops, prefers dry conditions       | P      |
| <i>Aeschynomene aspera</i> L.                              | Fabaceae<br>(Papilionaceae) |                                       |                                   | rice, prefers wet conditions               | P      |
| <i>Aeschynomene indica</i> L.                              | Fabaceae<br>(Papilionaceae) | joint vetch, budda pea                |                                   | rice, prefers wet conditions               | P      |
| <i>Ageratum conyzoides</i> L.                              | Asteraceae                  | tropic ageratum, goat weed, blue top  | ခွေးသေးပန်း၊ ကရင်မပန်းဖူး         | widespread                                 | ++     |
| <i>Alternanthera philoxeroides</i> (Mart.) Griseb.         | Amaranthaceae               | alligator weed                        |                                   |  | P      |
| <i>Alternanthera sessilis</i> (L.) R.Br. ex Roem. & Schult | Amaranthaceae               | sessile joyweed                       | ပုဇွန်စာ                          | rice                                       | +      |
| <i>Amaranthus spinosus</i> L.                              | Amaranthaceae               | spiny amaranth, spiny pigweed         | ဟင်းနုနွယ်ဆူးပေါက်                | widespread, vegetables                     | +++    |
| <i>Amaranthus viridis</i> L.                               | Amaranthaceae               | slender amaranth, green amaranth      | တောဟင်းနုနွယ်                     | cabbage, vegetables                        | ++     |
| <i>Axonopus compressus</i> (Sw.) P. Beauv.                 | Poaceae<br>(Graminae)       | broadleaf carpet grass                |                                   | orchards, capsicum, perennials, vegetables | P      |
| <i>Azolla pinnata</i> R. Br.                               | Azollaceae                  | azolla, water fern                    | အနီလာ                             | rice                                       | P      |
| <i>Bidens pilosa</i> L.                                    | Asteraceae                  | cobbler's pegs, Spanish needle        | တစ္ဆေအပိ၊ နေကြာကလေး၊ မုတ်ဆိုးမလုံ | cabbage, plantations                       | +      |
| <i>Boerhavia diffusa</i> L.                                | Nyctaginaceae               | red spiderling, tarvine               | ပရနွတ်နီ                          | rice, maize, upland crops                  | +      |
| <i>Boerhavia erecta</i> L.                                 | Nyctaginaceae               | erect spiderling                      | ပရနွတ်ပင်ထောင်                    | upland crops                               | +      |
| <i>Boerreria articularis</i> (L.F) F.N. Williams           | Rubiaceae                   |                                       |                                   | groundnut                                  | +      |
| <i>Borreria laevis</i> (Lam.) Griseb.                      | Rubiaceae                   | button weed                           | ဂျိုးခြေထောက်                     | rice, upland crops                         | P      |
| <i>Bothriochloa ischaemum</i> (L.) Keng                    | Poaceae                     | turkestan blue stem, yellow blue stem | ပန်းတော်ဖြူ                       | upland crops                               | P      |
| <i>Bothriochloa pertusa</i> (L) A. Camus                   | Poaceae                     |                                       |                                   | upland rice                                |        |
| <i>Brachiaria distachya</i> (L.) Stapf                     | Poaceae                     | lesser brachiaria                     | တဖက်သတ်                           | plantations, dryland crops                 | P      |
| <i>Brachiaria eruciformis</i> (Sm.) Griseb.                | Poaceae                     | sweet signalgrass                     | မြက်နီစပ်                         | perennial crops                            | P      |
| <i>Brachiaria reptans</i> (L.)<br>Gard. & C.E. Hubb        | Poaceae                     | running grass                         |                                   | upland crops                               | P      |
| <i>Cardiospermum halicacabum</i> L.                        | Sapindaceae                 |                                       | ကုလားမျက်စေ့                      | sorghum, rice, oilpalm                     | +      |
| <i>Cassia tora</i> L.                                      | Caesalpiniaceae             | foetid cassia                         | ဒန့်ကျဲ                           | pigeon pea, rubber                         | +      |
| <i>Celosia argentea</i> L.                                 | Amaranthaceae               | quail grass                           | ကြက်မောက်ဖြူ                      | groundnut, rice, upland crops              | ++     |
| <i>Cenotheca lappacea</i> (L.) Desv.                       | Poaceae                     | barbed grass                          |                                   | cocoa, coconut, rubber                     | P      |
| <i>Ceratopteris pteridoides</i> (Hook.) Hieron.            | Parkeriaceae                | horn fern, pod fern, swamp fern       |                                   | rice                                       | P      |

Table 18. (cont'd) Weeds of Myanmar

| Scientific Name  | Family                        | English common name   | Myanmar common name                   | Principal crop attacked   | Rating |
|--|-------------------------------|---|---------------------------------------|---|--------|
| <i>Chloris barbata</i> (L.) SW.                            | Poaceae                       | swollen fingergrass, purpletop chloris, plush grass                       | မြက်ခရာ                               | soybean, maize, sugarcane, groundnut                                      | P      |
| <i>Chromolaena odorata</i> (L.)<br>R.M. King & H. Robinson | Asteraceae                    | bitter bush, siam weed  | စာမနံ၊ ကုန်းဗေဒါ၊ နေဒဗန်              | oilpalm, rubber, coffee, fruit, cashew                                    | + +    |
| <i>Cleome rutidosperma</i> DC.                             | Capparidaceae<br>(Cleomaceae) | yellow cleome, consumption weed   | ဟင်းဂလာပြာ                            | orchards, rice, tobacco, immature plantations, vegetables                 | P      |
| <i>Cleome viscosa</i> L.                                   | Capparidaceae                 | wild caia, tick weed, spider plant  | ဟင်းဂလာဝါ                             | rice, tobacco, upland crops   | +      |
| <i>Commelina benghalensis</i> L.                           | Commelinaceae                 | day flower, tropical spider wort, hairy wandering jew, common spider wort | ဝက်ကျွတ်                              | soybean, rice, upland crops   | + +    |
| <i>Commelina diffusa</i> Burm.f.                           | Commelinaceae                 | spreading day flower  |                                       | rice, brassicas, upland crops, plantations                                | P      |
| <i>Convolvulus arvensis</i> L.                             | Convolvulaceae                | European bindweed, field bindweed, small flowered morning glory           | မက္ကဆီပက်ပေါင်း၊ ကောက် ရိုးနွယ်       | wheat, rice   | +      |
| <i>Corchorus olitorius</i> L.                              | Tiliaceae                     | tossa jute  |                                       | rice  | +      |
| <i>Crotalaria pallida</i> Aiton                            | Fabaceae                      | striped crotalaria, showy crotalaria                                      |                                       | cassava, upland rice  | P      |
| <i>Cynodon dactylon</i> (L.) Pers.                         | Poaceae                       | bermuda grass, couch, bahama grass  | မြေစာမြက်၊ မြင်းစာမြက်                | rice, soybean, groundnut, upland crops, perennial & vegetables            | + +    |
| <i>Cyperus aromaticus</i> (Ridley) Mattf.& Kuek            | Cyperaceae                    | greater kyllingia   |                                       | rice, pineapple, watermelon, vegetables                                   | P      |
| <i>Cyperus babakan</i> Steudel                             | Cyperaceae                    |   |                                       | rice  | P      |
| <i>Cyperus brevifolius</i> (Rottb.) Hasskal                | Cyperaceae                    | short kyllingia, white, couch, kyllingia, mullumbimby grass               | မြက်မုံညှင်းရွက်တို မြက်မုံညှင်းအလုံး | rice, pineapple, watermelon   | P      |
| <i>Cyperus compactus</i> Retz.                             | Cyperaceae                    |   |                                       | rice  | P      |
| <i>Cyperus compressus</i> L.                               | Cyperaceae                    | hedgehog cyperus  | မြက်မုံညှင်းအပြား                     | cocoa, coconut, watermelon, pineapple                                     | +      |
| <i>Cyperus difformis</i> L.                                | Cyperaceae                    | small flowered umbrella plant   | မြက်မုံညှင်းအစိမ်း                    | rice, vegetables, orchards  | +      |
| <i>Cyperus digitatus</i> Roxb.                             | Cyperaceae                    | digitate cyperus  |                                       | rice  | P      |
| <i>Cyperus haspan</i> L.                                   | Cyperaceae                    |   |                                       | rice, pineapple   | P      |
| <i>Cyperus imbricatus</i> Retz.                            | Cyperaceae                    |   |                                       | paddy   | P      |
| <i>Cyperus iria</i> L.                                     | Cyperaceae                    | umbrella sedge, rice flat sedge, grasshoppers cyperus                     | မြက်မုံညှင်းအဝါ                       | rice, groundnut, capsicum, pineapple, vegetables, upland crops            | + + +  |
| <i>Cyperus odoratus</i> L.                                 | Cyperaceae                    |   |                                       | rice, vegetables, orchards  | P      |
| <i>Cyperus pilosus</i> Vahl.                               | Cyperaceae                    | hairy cyperus   |                                       | rice, capsicum, vegetables, orchards                                      | P      |
| <i>Cyperus polystachyos</i> Rottb.                         | Cyperaceae                    | bunchy sedge, field sedge   |                                       | rice, pineapple   | P      |
| <i>Cyperus rotundus</i> L.                                 | Cyperaceae                    | nutsedge, purple nutsedge   | မြက်မုံညှင်းဥနက်                      | rice, vegetables, orchards, banana, durian, rubber, coconut, upland crops | + + +  |

Table 18. (cont'd) Weeds of Myanmar

| Scientific Name   | Family         | English common name   | Myanmar common name               | Principal crop attacked   | Rating |
|---|----------------|---|-----------------------------------|---|--------|
| <i>Cyrtococcum accrescens</i> (Trin.) Stapf                                     | Poaceae        | diffuse panic grass   |                                   | banana, durian, rubber, coconut, perennial crops                    | P      |
| <i>Dactyloctenium aegyptium</i> (L.) Richt.                                     | Poaceae        | crowfoot grass, coast button grass, beach wire grass, Egyptian finger grass | လေးခွမြက် ပန်းတော်နီ၊ ပန်းတော်ညို | soybean, vegetables, rubber, tapioca, upland crops, perennial crops | ++     |
| <i>Dicanthium caricosum</i> (L.) Camus  | Poaceae        |   |                                   | upland field crops, perennial crops                                 | +      |
| <i>Digitaria adscendens</i> (H.B.K) Henr. = ( <i>D. ciliaris</i> (Retz.) Koel.) | Poaceae        | finger grass, tropical crabgrass, summer grass                              | အင်တိုင်းမြက်ခါး လက်သဲခွမြက်      | upland crops, orchards, vegetables, plantation crops                | ++     |
| <i>Digitaria sanguinalis</i> (L.) Scop.   | Poaceae        | large crabgrass, hairy crabgrass, hairy finger grass                        | လက်သဲခွမြက်                       | rice, castor  | +      |
| <i>Digitaria violescens</i> Link  | Poaceae        |   |                                   | upland crops  | P      |
| <i>Digitaria setigera</i> R. & S.   | Poaceae        |   |                                   | upland crops, plantation crops. Prefers both moist and dry lands    | +      |
| <i>Echinochloa colona</i> (L.) Link   | Poaceae        | jungle rice, birds rice, awnless barnyard grass                             | ဝမ်းဘဲစာမြက်                      | vegetables, rice, upland crops, perennial crops                     | +++    |
| <i>Echinochloa crus-galli</i> (L.) P.Beauv.                                     | Poaceae        | barnyard grass, water grass   | ဘဲစာမြက်၊ မြက်သီး၊ မြက်ချို       | rice, perennial crops   | P      |
| <i>Echinochloa oryzoides</i> (Ard.) Fritsch                                     | Poaceae        |   |                                   | rice  | P      |
| <i>Eclipta prostrata</i> (L.) L.  | Asteraceae     | white heads, false daisy  | ကြိတ်မှန်                         | rice, groundnut, soybean, etc.                                      | +      |
| <i>Eichhornia crassipes</i> (Mart.) Solms                                       | Pontederiaceae | water hyacinth, waterorchid   | ဗေဒါ                              | rice  | ++     |
| <i>Eleusine indica</i> (L.) Gaertner  | Poaceae        | goose grass, wire grass   | ဆင်ငိုမြက်                        | rice, vegetables, orchards, rubber, oilpalm, cassava, coffee, tea   | ++     |
| <i>Emilia sonchifolia</i> (L.) DC.  | Asteraceae     | emilia, red tassel flower, purple sowthistle                                | ကနဖော့                            | pineapple, vegetables   | +      |
| <i>Enydra fluctuans</i> Lour.   | Asteraceae     |   |                                   | rice  | +      |
| <i>Eragrostis atrovirens</i> (Desf.) Trin.ex Steud.                             | Poaceae        | wiry love grass, wiry eragrostis  | ကြိုးကြာမြက်                      | cultivated land, plantations, pineapple, banana, vegetables         | +      |
| <i>Eragrostis tenella</i> (L.) P.Beauv.ex Roem. & Schult.                       | Poaceae        | feathery eragrostis, feathery love grass, bug's egg grass                   |                                   |   | P      |
| <i>Eragrostis unidoides</i> (Retz.) Nees ex Steudel                             | Poaceae        | Chinese love grass  |                                   | rice, vegetables  | P      |
| <i>Erigeron sumatrensis</i> Retz.   | Asteraceae     | fleabane, Sumatran erigeron   |                                   | orchards, vegetables, plantations                                   | P      |
| <i>Euphorbia heterophylla</i> L.  | Euphorbiaceae  | painted spurge  |                                   | soybean, maize, orchards  | +      |
| <i>Euphorbia hirta</i> L.   | Euphorbiaceae  | garden spurge, snake weed   | ကျွဲကျောင်းမင်စေး                 | sugarcane, orchards, upland crops, vegetables, perennial crops      | +      |
| <i>Fimbristylis dichotoma</i> (L.) Vahl   | Cyperaceae     | tall-fringe rush, fimbristylis  | မြက်ကွမ်းသီးကြိုး                 | rice  | ++     |
| <i>Fimbristylis globulosa</i> (Retz.) Kunth                                     | Cyperaceae     | globular fimbristylis   |                                   | rice  | P      |

Table 18. (cont'd) Weeds of Myanmar

| Scientific Name   | Family                           | English common name                          | Myanmar common name | Principal crop attacked  | Rating |
|---|----------------------------------|--|---------------------|--|--------|
| <i>F. miliacea</i> (L.) Vahl  | Cyperaceae                       | lesser fimbristylis, grass-like fimbristylis | မြက်ကွမ်းသီးလေး     | rice, vegetables   | +++    |
| <i>Fuirena ciliaris</i> (L.) Roxb.  | Cyperaceae                       | umbrella grass                               |                     | papaya, pineapple, banana, rice, prefer aquatic & wet conditions | P      |
| <i>Fuirena umbellata</i> Rottb.   | Cyperaceae                       |  |                     | rice, aquatic biotype  | P      |
| <i>Gomphrena celosioides</i> Mart.  | Amaranthaceae                    | gomphrena                                    | ဘောကြက်မောက်လေး     | cowpea, upland crops   | +      |
| <i>Hedyotis racemosa</i> Lam.   | Rubiaceae                        | two-flowered aldenlandia                     |                     | rice, pigeon pea   | ++     |
| <i>Hemarthria compressa</i> (L.f.) R. Br.   | Poaceae                          | whip grass, swamp couch                      |                     | pineapple, perennial crops, aquatic biotypes                     | P      |
| <i>Hydrilla verticillata</i> (L.f.) Royle   | Hydrocharitaceae                 | water thyme, hydrilla, Florida elodea        |                     | rice   | P      |
| <i>Hydrocera triflora</i> (L.) Wight & Arn.   | Geraniaceae<br>(Balsaminaceae)   | marsh henna                                  |                     | rice (prefers aquatic and wet conditions)                        | P      |
| <i>Hydrolea zeylanica</i> (L.) Vahl   | Hydrophyllaceae                  |  |                     | rice   | +      |
| <i>Hymenachne acutigluma</i> (Steud.) Gilliland<br>= <i>Hymenachne pseudointerrupta</i> | Poaceae                          |  |                     | rice   | P      |
| <i>Hyptis capitata</i> Jacq.  | Lamiaceae                        | knob weed                                    | ဖော့မြက်            | dryland crops  | P      |
| <i>Hyptis suaveolens</i> (L.) Poit  | Lamiaceae                        | bush tea, wild spikenard                     | ပင်ခိမ်းရိုင်း      | cultivated lands, rice   | +      |
| <i>Imperata cylindrica</i> (L.) P. Beauv.   | Poaceae                          | blady grass, cogongrass, kunai grass         | သက်ကယ်              | rice, orchards, vegetables, plantation crops                     | +++    |
| <i>Ipomoea triloba</i> L.   | Convolvulaceae                   | pink convolvulus, three-lobe morning glory   | ကန်ဖွန်းနွယ်        | upland rice, upland crops  | +      |
| <i>Isachne globosa</i> (Thunb.) O. Ktze.  | Poaceae                          | swamp millet, rounded isachne                | ဝါးရုံမြက်          | rice   | P      |
| <i>Ischaemum indicum</i> (Houtt.) Merr.   | Poaceae                          | smut grass                                   |                     | maize (prefers wet land)   | P      |
| <i>Ischaemum rugosum</i> Salisb.  | Poaceae                          | wrinkle duck-beak, wrinkled grass            |                     | rice, pineapple, watermelon, rubber                              | +      |
| <i>Lantana camara</i> L.  | Verbenaceae                      | lantana, prickly lantana                     | စိန်နုပန်           | durian, pineapple, banana, rubber                                | +      |
| <i>Leersia hexandra</i> Sw.   | Poaceae                          | southern cut grass, swamp, rice grass        | သမန်းမြက်           | rice, maize  | P      |
| <i>Leptochloa chinensis</i> (L.) Nees   | Poaceae                          | red sprangletop, feather grass               | ခေါင်းဖြိုးပျံ      | rice, cotton, soybean, maize, sugarcane                          | +++    |
| <i>Leucas cephalotes</i> (Roth)   | Lamiaceae                        |  |                     | rice   | +++    |
| <i>Leucas linifolia</i> (Roth) Spreng.  | Lamiaceae                        | leucas                                       | ပင်ကူထိပ်ပိတ်       | upland crops   | +      |
| <i>Leucas zeylanica</i> (L.) R. Br.   | Lamiaceae                        |  |                     | tobacco  | ++     |
| <i>Limnocharis flava</i> (L.) Bunch   | Butomaceae<br>(Limnocharitaceae) |  |                     | rice   | P      |
| <i>Luwigia adscendens</i> (L.) Hara   | Onagraceae                       | creeping water primrose                      | ရေကညွတ်             | rice   | +      |
| <i>Luwigia hyssopifolia</i> (G. Don) Exell  | Onagraceae                       | water primrose                               | လယ်လေးညှင်း         | rice, cotton, tobacco, vegetables                                | +++    |
| <i>Luwigia octovalvis</i> (Jacq.) Raven   | Onagraceae                       | willow primrose, willow herb                 |                     | rice   | +      |
| <i>Marsilea minuta</i> L.   | Marsileaceae                     | water clover, clover fern                    | မှိုနီတို           | rice   | +      |

Table 18. (cont'd) Weeds of Myanmar

| Scientific Name  | Family                   | English common name                               | Myanmar common name    | Principal crop attacked                                | Rating |
|--|--------------------------|---|------------------------|--|--------|
| <i>Marsilea quadrifolia</i> L.                           | Marsileaceae             |   |                        | rice   | P      |
| <i>Melochia corchorifolia</i> L.                         | Sterculiaceae            | wire bush, crabs eggs                             |                        | rice, tobacco, upland rice                             | +      |
| <i>Mentha arvensis</i> L.                                | Lamiaceae                |   |                        | groundnut, pineapple                                   | +      |
| <i>Mimosa invisa</i> Mart. ex Colla                      | Fabaceae<br>(Mimosaceae) | giant sensitive plant                             | ထိကရုံးကြီး            | orchards, rice   | +      |
| <i>Mimosa pigra</i> L.                                   | Fabaceae<br>(Mimosaceae) | giant mimosa, thorny sensitive plant              |                        | rice (prefers wet and swamp conditions)                | ++     |
| <i>Mimosa pudica</i> L.                                  | Fabaceae<br>(Mimosaceae) | sensitive plant                                   | ထိကရုံး                | orchards, vegetables, maize, tea, rice, upland crops   | +++    |
| <i>Mitracarpus villosus</i> (Sw.) Cham. & Schldl. ex DC. | Rubiaceae                |   |                        | groundnut, plantations                                 | +++    |
| <i>Monochoria hastata</i> (L.) Solms                     | Pontederiaceae           | monochoria  | ကတောက်ဆတ်၊ ပိတောက်     | rice   | P      |
| <i>Monochoria vaginalis</i> (Burm.f) Presl               | Pontederiaceae           | monochoria, pickerel weed                         | ဆတ်                    | rice   | ++     |
| <i>Murdannia nudiflora</i> (L.) Brenan                   | Commelinaceae            | spreading day flower                              |                        | rice, vegetables, tobacco (prefer wet and saline soil) | ++     |
| <i>Najas graminea</i> Del.                               | Najadaceae               | bushy pond weed                                   |                        | rice   | P      |
| <i>Nymphaea lotus</i> L.                                 | Nymphaeaceae             |   |                        | rice   | P      |
| <i>Nymphoides indica</i> (L.) O. Kunze                   | Gentianaceae             | water snow flake                                  |                        | rice   | P      |
| <i>Oldenlandia corymbosa</i> L.                          | Rubiaceae                |   |                        | orchards, vegetables                                   | +      |
| <i>Oryza rufipogon</i> Griff.                            | Poaceae                  | red rice, wild rice, wild red rice                | ခေါင်းစပါး၊ ခေါင်းမြက် | rice   | ++     |
| <i>Ottelia alismoides</i> (L.) Pers.                     | Hydrocharitaceae         |   |                        | rice   | P      |
| <i>Ottochloa nodosa</i> (Kunth) Dandy                    | Poaceae                  | slender panic grass                               |                        | durian, cocoa, coconut, oil palm, rubber, orchards     | ++     |
| <i>Oxalis latifolia</i> Kurth                            | Oxalidaceae              | oxalis, pink shamrock                             |                        | upland rice  | P      |
| <i>Panicum repens</i> L.                                 | Poaceae                  | torpedograss, creeping panic grass, couch panicum | မြက်ကြိမ်              | soybean, groundnut, tobacco, vegetables, plantations   | +      |
| <i>Paspalum conjugatum</i> Berg.                         | Poaceae                  | sourgrass, T-grass                                |                        | vegetables, orchards, cocoa, coconut, oil palm         | +      |
| <i>Paspalum distichum</i> L. = ( <i>P. paspaloides</i> ) | Poaceae                  | seashore paspalum                                 |                        | rice, perennial crops                                  | P      |
| <i>Paspalum scrobiculatum</i> L.                         | Poaceae                  | ditch millet, bull paspalum, Indian paspalum      |                        | rice, orchards, plantations                            | P      |
| <i>Passiflora foetida</i> L.                             | Passifloraceae           | stinking passion flower, wild passion fruit       | မြင်းကြားသီးပင်၊ ဆူးကာ | banana, cocoa, coconut, vegetables, plantations        | +      |
| <i>Pennisetum polystachyon</i> (L.) Schult.              | Poaceae                  | feather pennisetum, mission grass                 |                        | pineapple, banana, rubber, oilpalm, orchards           | P      |

Table 18. (cont'd) Weeds of Myanmar

| Scientific Name  | Family                      | English common name                                   | Myanmar common name           | Principal crop attacked                            | Rating |
|--|-----------------------------|---|-------------------------------|--|--------|
| <i>Pennisetum pedicellatum</i> Trin.   | Poaceae                     | feather pennisetum, kayasuwa grass                    | မြက်ပန်း                      | perennial crops                                    | P      |
| <i>Pennisetum purpureum</i> K. Schum.  | Poaceae                     | napier grass, elephant grass                          |                               | rice, plantations                                  | P      |
| <i>Phyllanthus fraternus</i> Webster<br>= <i>Phyllanthus niruri</i>                        | Euphorbiaceae               | niruri  | စာကလေးဖီး                     | rice, cocoa, coconut, tobacco, upland crops        | +      |
| <i>Physalis angulata</i> L.  | Solanaceae                  | wild cape goose berry                                 | ဘောက်ပင်                      | sunflower, cultivated lands                        | +      |
| <i>Physalis minima</i> L.  | Solanaceae                  | Chinese lantern plant, wild cape gooseberry           |                               | orchards, vegetables                               | P      |
| <i>Pistia stratiotes</i> L.  | Araceae                     | water lettuce, smart weed, lady 3 thumb               | ရေဆလပ်                        | rice   | +      |
| <i>Polygonum tomentosum</i> Willd.   | Polygonaceae                | knot weed   | ဘုတ်ထောင်၊ ကျွဲနှာခေါင်း      | wet land rice                                      | +      |
| <i>Portulaca oleracea</i> L.   | Portulacaceae               | common purslane, pig weed                             | သဲပုရစ်၊ မြေပုရစ်၊ မြေ        | sorghum, rice, upland crops, vegetables, groundnut | ++     |
| <i>Pteridium esculentum</i> (Forst.f.) Cockayne  | Dennstaedtiaceae            | common bracken  | ထောက်                         | banana, guava, pineapple, oil palm                 | +      |
| <i>Pueraria phaseoloides</i> (Roxb.) Benth.  | Fabaceae<br>(Papilionaceae) | puero, tropical kudzu                                 | ပဲရိုင်း                      | bean   | +      |
| <i>Richardia braziliensis</i> (Moq.) Gomez   | Rubiaceae                   | pursley, Brazil calla lily, white eye, Mexican clover | ရှမ်းပြေ                      | cowpea, upland rice, perennial crops               | ++     |
| <i>Rotala indica</i> (Willd.) Koehne   | Lythraceae                  |   |                               | rice   | P      |
| <i>Rottboellia cochinchinensis</i> (Lour.) W.D. Clayton<br>( <i>Rottboellia exaltata</i> ) | Poaceae                     | itchgrass, corngrass                                  | မြက်ယားငယ်                    | rice, sugarcane, prefers well drained lands        | +      |
| <i>Saccharum spontaneum</i> L.   | Poaceae                     | saccharum   | ကိုင်း                        | upland crops, perennial crops                      | +      |
| <i>Sacciolepis indica</i> (L.) A. Chase  | Poaceae                     | Indian cupscale grass                                 |                               | rice   | P      |
| <i>Sagittaria guayanensis</i> H.B.K.   | Alismataceae                |   |                               | rice   | P      |
| <i>Sagittaria trifolia</i> L.  | Alismataceae                | old world arrowhead                                   |                               | rice   | P      |
| <i>Scirpus grossus</i> L.f.  | Cyperaceae                  | greater club rush                                     | ဝက်လာ                         | rice   | ++     |
| <i>Scirpus juncooides</i> Roxb.  | Cyperaceae                  |   | တလိုင်းခေါင်းမြက်၊ မြက် ကလုံး | rice   | ++     |
| <i>Scirpus lateriflorus</i> Gmelin   | Cyperaceae                  |   |                               | rice   | P      |
| <i>Scirpus maritimus</i> L.  | Cyperaceae                  |   |                               | rice   | P      |
| <i>Scirpus supinus</i> L.  | Cyperaceae                  |   |                               | rice   | P      |
| <i>Scleria levis</i> Retz.   | Cyperaceae                  |   |                               | papaya, banana                                     | P      |
| <i>Scleria sumatrensis</i> Retz.   | Cyperaceae                  | Sumatrum scleria                                      |                               |  | P      |
| <i>Scoparia dulcis</i> L.  | Scrophulariaceae            | sweet broom weed, scoparia weed                       | ဒန္တသုခ                       | sorghum  | +      |
| <i>Senna obtusifolia</i> (L.) Irwin & Barneby  | Fabaceae                    |   |                               | rice   | P      |

Table 18. (cont'd) Weeds of Myanmar

| Scientific Name   | Family           | English common name                                    | Myanmar common name         | Principal crop attacked                      | Rating |
|---|------------------|--|-----------------------------|--|--------|
| <i>Setaria geniculata</i> (Lam.) P. Beauv.                      | Poaceae          | knot root foxtail, slender pigeon grass, bristle grass |                             | rice   | P      |
| <i>Sida acuta</i> Burm. f.                                      | Malvaceae        | broom weed, southern sida, spinyhead sida              | တံမြက်စည်းပင်၊ ရွှေတံတိုင်း | plantations                                  | +      |
| <i>Solanum nigrum</i> L.  | Solanaceae       | blackberry nightshade                                  | ဘောက်လောက်ညို               | vegetables                                   | P      |
| <i>Sphaeranthus africanus</i> L.                                | Asteraceae       |  |                             | rice   | +      |
| <i>Sphenoclea zeylanica</i> Gaertn.                             | Sphenocleaceae   | goose weed   | လယ်ဝတူ                      | rice   | ++     |
| <i>Spilanthus filicaulis</i> (Schum. & Thonn.) C.D. Adams       | Asteraceae       |  | ဘိစပ်                       | sorghum, pigeon pea                          | +      |
| <i>Sporobolus indicus</i> var. <i>diander</i> (Retz.) P. Beauv. | Poaceae          | tussocky sporobolus                                    | ပြောင်းစားဘီလူး၊ ပွင့်ဖြူ   | pineapple, plantations, dry places           | P      |
| <i>Striga asiatica</i> (L.) O. Kuntze                           | Scrophulariaceae | witch weed   |                             | rice, sorghum, sugarcane, corn               | +      |
| <i>Trianthema portulacastrum</i> L.                             | Aizoaceae        | giant pigweed, black pigweed                           | လိပ်ရင်ဘတ်                  | cotton, upland crops, perennials, vegetables | +++    |
| <i>Tridax procumbens</i> L.                                     | Asteraceae       | tridax, coat buttons                                   | တပင်ရွှေထီး                 | cotton, vegetables                           | +      |
| <i>Typha angustifolia</i> L.                                    | Typhaceae        | narrow-leaf cattail, bulrush, lesser reedmace          | ရှင်နွယ်လုံး၊ ပိတ်စွယ်      | rice   | P      |
| <i>Utricularia aurea</i> Lour.                                  | Lentiburiaceae   | bladder wort   |                             | rice   | P      |
| <i>Urena lobata</i> L.  | Malvaceae        | hibiscus burr, cadillo                                 | ကပ်စေးနဲ့                   | upland crops                                 | +      |
| <i>Vernonia cinerea</i> (L.) Less.                              | Asteraceae       | little ironweed, vernonia                              |                             | orchards                                     | P      |
| <i>Zoysia matrella</i> (L.) Merr.                               | Poaceae          | siglap grass, Korean grass                             |                             | cocoa, coconut                               | ++     |

**Table 19 Production statistics for Myanmar crops<sup>a</sup>**

Myanmar is described in its 1999 *Information on Myanma Agriculture* as a forest-clad mountainous country with plateaus, valleys and plains. The mountains, ranging in altitude from 900m to over 2 000m, form natural boundaries between it and her neighbours. Rivers flow from north to south.

Some 71% of its 46.4 million population are involved with agriculture (FAO 1998). More than 60 different crops are grown in a cultivated area of 12 276 000 hectares. Rice occupies 47% of the total crop area, with other cereals (mainly maize, sorghum and wheat, in that order) a further 5%. Next in importance come oilseed crops, followed by pulses and industrial crops. The area under cropping expanded significantly between 1960 and 1980, due largely to farm mechanisation and increasing availability of irrigation water.

| Crop                    | Sown area ('000 ha) | Production ('000 tonnes) |
|-------------------------|---------------------|--------------------------|
| <b>Cereals</b>          |                     |                          |
| Paddy                   | 5 789               | 16 453                   |
| Wheat                   | 88                  | 94                       |
| Maize                   | 252                 | 11                       |
| Sorghum                 | 246                 | 149                      |
| Other                   | 28                  |                          |
| <b>Oil crops</b>        |                     |                          |
| Groundnut               | 450                 | 540                      |
| Sesame                  | 1 035               | 296                      |
| Sunflower               | 120                 | 90                       |
| Oil palm                | 9                   | 18                       |
| Mustard                 | 20                  | 10                       |
| Other oil seeds         | 61                  |                          |
| <b>Peas and beans</b>   |                     |                          |
| Black gram              | 492                 | 419                      |
| Butter beans            | 45                  | 42                       |
| Green gram              | 546                 | 448                      |
| Sultapya                | 48                  | 35                       |
| Pelun                   | 78                  | 59                       |
| Chick pea               | 20                  | 90                       |
| Pigeon pea              | 252                 | 176                      |
| <b>Industrial crops</b> |                     |                          |
| Cotton                  | 267                 | 164                      |
| Jute                    | 38                  | 33                       |
| Sugarcane               | 202                 | 5 234                    |
| Rubber                  | 135                 | 30                       |
| Virginia tobacco        | 38                  | 62                       |
| <b>Food crops</b>       |                     |                          |
| Potato                  | 22                  | 237                      |
| Onion and garlic        | 41                  | 278                      |
| Chilies                 | 84                  | 58                       |
| Vegetables              | 208                 |                          |
| <b>Plantation crops</b> |                     |                          |
| Tea                     | 68                  | 67                       |
| Coffee                  | 6                   | 2                        |

<sup>a</sup>Adapted from Anon 1999

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