are misused in "defoliation of the larval stage" and in referring on p. 24 to insects "in," "on," and "of." Table 9. An interesting adverbial construction is "unpleasantly smeling." On nearly any page one can find verbs that do not agree in number with their subject ("Apricots are one of the most desired of the deciduous fruits and is utilized fresh . . .").

The first sentence of Quist's preface, where we are told he intends to "initiate the first organized approach" (italics ours), sets the tone for a graceless writing style. It is frequently wordy ("insect pests are grouped in three groups," "forthcoming in the future"); awkward ("As an introduced tree, we have few insect pests attacking this tree"); or simply unfathomable ("It is best planted not too near buildings or walkways where the falling catkins, leaves and nuts will not be objectionable"). The following, a run-on sentence and non sequitur, is a favorite: "From the landscaping standpoint this is more than enough, also, we have no need for fence posts." In addition, there are several sentence fragments. To liven an otherwise drab writing style, the author coined the words "expectably" and "safen." The errors singled out are not isolated; similar examples can be found on any page, perhaps in any paragraph.

Sadly, the format equals the mechanics and writing style. Photographs are mostly mediocre and sometimes poor (pp. 30, 86, 87, 91). Pictures of nests of the western tent caterpillar appear on both p. 20 and 21. Captions are carelessly worded, with "larvae" often being used when a single caterpillar is shown. Once we are told that a larva is a "caterpillar larvae." That these errors resulted not only from unfamiliarity with Latin, but inattentiveness is shown by his use of "adults" for a single insect. In the most ludicrous caption, we are told a cottonwood borer is "on cottonwood" although there is an obvious absence of plant material.

We note that the graphs often are meaningless by themselves and vague even with reference to the text; most have unlabeled axes of reference and have no legend. Citation of references is unconventional with author and date used infrequently or in an annoying style ("Childers, 1969, suggests . . ."). More often only an author name is cited, which is confusing when the bibliography lists more than one paper for that author. We also found that in our 3-hole-drilled revisions, "initiate organized approach" (italics ours), sets the tone for a graceless writing style. It is frequently wordy ("insect pests are grouped in three groups," "forthcoming in the future"); awkward ("As an introduced tree, we have few insect pests attacking this tree"); or simply unfathomable ("It is best planted not too near buildings or walkways where the falling catkins, leaves and nuts will not be objectionable"). The following, a run-on sentence and non sequitur, is a favorite: "From the landscaping standpoint this is more than enough, also, we have no need for fence posts." In addition, there are several sentence fragments. To liven an otherwise drab writing style, the author coined the words "expectably" and "safen." The errors singled out are not isolated; similar examples can be found on any page, perhaps in any paragraph.

We would have been more inclined to gloss over some of the defects in execution and format if the book had something substantial to offer homeowners and had been technically sound. But the author does not live up to his promise of considering "every pest known on each host plant"; at least for the eastern United States he omits several pests of consequence, e.g., honeylocust plant bug and hawkthorn lace bug on species of Cotonoeaster and Pyracantha. Several statements do not hold for the eastern states. Honeylocust cannot be considered "free of pest problems," and Amelanchier does not have many pests in common with apple or raspberry. There are additional entomological errors or confusing statements. We fail to understand why eggs of certain mites, scale insects, and Lepidoptera are characterized as "damaging forms," or why larvae of the honeylocust pod gall midge are classified as "sucking insects." Most laymen, and even some entomologists, would fail to associate the "spiny elm caterpillar" in photographs on p. 45 with the "mourning cloak butterfly" mentioned in the text and in the list of elm pests.

Under spray recommendations, we note that names of all insecticides are capitalized whether they are trade or generic names. Although the author suggests dormant oils for use against eggs of tent caterpillars and leaf rollers, this is not recommended for the East, and it is questionable even for the Rocky Mountain area.

From a botanical or horticultural viewpoint, several statements reveal a lack of technical competence. Species of the genus Areitium are not thistles; Catalpa, at least in the eastern U.S., is not an "important landscape tree"; poison ivy leaves and sap do not "sting" when touched; shrubs under drought conditions do not become "thirsty," a "shallow, wide-spreading root system" does not provide "good stability"; and apple trees do not always produce "five fruit blossoms . . . at each fruit bud." We also wonder what "small-medium-large shrubs" are.

Most homeowners would find some of the "pest management suggestions" difficult to interpret or implement, e.g., "acidifying spray solutions." Few would comprehend "beneficials," "pre-RPAR," "SLN," or "promise uses" of insecticides. An obvious omission is the incorporation of resistant varieties or cultivars and relatively resistant plant species into the scheme of pest management. The use of parasites or predators is recommended several times, but no attempt is made to identify them or to provide sources of these natural enemies. In fact, the author's ideas on IPM practices seem to have been nurtured in a vacuum; no reference is made to the Frankie and Koehler volume we mentioned earlier or to research being conducted on ornamentals in California, e.g., by William and Helga Olkowski.

By now, it is obvious that this book will not benefit either the homeowner or the professional entomologist. We do, however, commend the author for seeing the need for applying IPM principles to the home landscape. Urban Insect Pest Management required time and effort in preparation; it is all too easy for us to be critical, but why did the author apparently not confer with colleagues working in related areas of entomology or have the manuscript reviewed? What motivated him to publish what seems to be a rough draft?

Our evaluation has been critical but, in our opinion, fair. This unfavorable review is written to encourage studies that contribute to our knowledge of insects associated with ornamentals and to our ability to combat pest problems with minimal disruption to the environment.

A. G. Wheeler, Jr.
Frank G. Stearns
Bureau of Plant Industry
Pennsylvania Department of Agriculture
Harrisburg, PA 17110

Sampling Methods in Soybean Entomology, M. Kogan and D. C. Herzog, eds. Springer-Verlag New York, Inc., Secaucus, N.J. 387 pp. $44.80. This volume is one from the Springer-Verlag series in experimental entomology; its purpose is (1) to report new developments in methodology, (2) to identify individuals and groups who have dealt with and solved particular entomological problems, and (3) to describe the experiments which might be applicable for use in the laboratory part of biology courses. This particular volume certainly satisfies two of the stated purposes of the series. A comprehensive state-of-the-art in sampling methodology for insects associated with soybean is presented and the individuals and groups that have been responsible for the development of sampling techniques are identified.

The thirty-one contributors to the twenty-eight chapters of the volume are internationally known scientists among the world leaders in soybean insect research. They have done a commendable job in reviewing and citing pertinent literature. In fact, the book contains virtually a bibliography of the published work on the biology and ecology of insects associated with soybean. It is an excellent reference for scientists...
interested in pest management and should be included among the references of those people interested in soybean production, as well as those interested in sampling.

The editors have divided the book into eight specific sections. Section I contains five chapters and deals with general concepts and techniques in sampling. A discussion of general sampling theory is presented which has application to all areas of entomological sampling. This section, as all sections of the book, is well written and completely comprehensible.

Section II deals in three chapters with the "Lepidopterous Defoliators," specifically with the velvetbean caterpillar, the soybean looper and the green cloverworm. Section II contains two chapters which cover the "Coleopterous Defoliators" of soybean. Two species, the Mexican bean beetle and the bean leaf beetle are covered in a thorough and comprehensive manner. The fourth section covers the "Other Foliage Feeders." Aphids, leafhoppers, phytophagous thrips, whiteflies, and mites associated with soybean are discussed in the five chapters in this section. The "Underground Feeders" are discussed in a single chapter in Section V. Arthropods such as the seedcorn maggot, cutworms, wireworms, white grubs, the lesser cornstalk borer, and others that attack the underground part of the soybean plant are discussed and general sampling plans are given. The "Stem and Axil Feeders" are discussed in four chapters in Section VI and the "Pod Feeders" are presented in the three chapters of Section VII. These various chapters are organized as follows: (1) general introduction including geographical distribution of the species, host plants, and nature and type of damage; (2) the life cycle and phenology of the species; (3) detailed sampling methodology for the various life stages including comparisons and calibrations of relative sampling methods, spatial patterns, and absolute and relative sampling techniques; and (4) some concluding remarks which include suggestions for future research in sampling methodologies.

Section VIII is a highlight of the book. It contains five chapters in which the "Natural Control Agents" associated with soybean arthropods are considered. Our need to know the population levels of natural enemies, as well as pest species, as we develop pest management programs is emphasized.

Perhaps the most critical point one could make about the book is the title. The book certainly is a comprehensive treatment of sampling techniques for soybean arthropods, but it is far more than that. The excellent accounts of the geographical distribution, host plants, type and nature of damage, and life cycle and phenology of the various pest species are not suggested in the title but they make up a major and valuable part of the volume.

The book is profusely illustrated, well-written and largely error free, with excellent references and a good index. It deserves to be on the shelf of soybean entomologists and others interested in soybean production.

B. C. Pass
Department of Entomology
University of Kentucky
Lexington, KY 40546


The author of this book has compiled a very detailed description of the morphology of the lubber grasshopper. Earlier studies on other species by Snodgrass, Albrect, Jannone and several others provide the background and Jones has checked their results with what he has found in Romalea. In general, the agreement is good but a few differences are noted. It is extremely useful to have all this material in a single volume.

The exoskeleton, endoskeleton and muscles are dealt with in 190 pages and the digestive, excretory, nervous, endocrine, and reproductive systems in 50 pages. There are 154 well-drawn illustrations and approximately 3,000 names of parts are listed in the 26-page index.

As a reference, then, most persons who are working with grasshoppers will probably wish to obtain this book. However, as a student manual—and it is so described on the cover—it would seem to be too detailed for most students. For example, nearly 300 muscles are named and located. Certain portions, of course, could be assigned for careful study and others omitted.

The information given deals entirely with preserved specimens and these are definitely less interesting than those dissected immediately after they have been killed and examined in physiological saline. In the latter the organs are more brightly colored and differences in texture more obvious. Some parts may still be moving, secreting, etc. Romalea microptera is a very easy species to raise in the laboratory and provides a constant source of fresh material.

Another helpful type of preparation not mentioned in this book is that made by boiling specimens in a solution of KOH. Here, all the soft parts are gone and the cuticular parts remaining are much easier to study.

About 20 misspellings and other typographical errors were noted and should be corrected in the next edition.

Eleanor Slikker
308 Lismore Ave.
Glenside, PA 19038


This is Dr. Frazier's second book on the problems of allergic reactions attributed to arthropods and it appears to be prepared for the nonprofessional. The 239 pages of text, 32 color plates and 11 appendices focus on arthropods which commonly cause health problems in the United States and on the prevention or treatment of the allergic and toxic reactions to bites, stings, and other types of exposure. Since 4 to 8 persons per 1,000 are estimated to have had or will suffer a generalized systemic reaction to an arthropod sting or bite, there is a definite need to acquaint the public with the means of prevention and the treatment currently available.

Chapters 1 and 2 give a very generalized description of the historical and current impact of arthropods on mankind and the factors which contribute to an allergic reaction, respectively. Most of the remaining chapters are devoted to general descriptions of the group of offending arthropods, unreferenced case histories of allergic reactions, home treatment procedures, and a summary section. The flippant style of the chapter titles, e.g. "From the Mighty to the Mite," detracts from the seriousness of the subject matter and the considerable information in the text. Interesting comments on arthropods which pose no health hazards are often included in these chapters but they appear out of place in this book. Correct identification is stressed to assist the attending physician in treatment and most of the plates produced from color drawings are excellent. However, several of the photographs are of poor quality or poorly reproduced and a few are mislabeled; two notable examples being a photograph of a posterior view of a mosquito with a caption describing the head and mouth parts, and the plate of an adult chigger mite described as a larva. This book is oversimplified in many areas, even for the nonprofessional, and could have been significantly improved by more detailed explanations reflecting the current literature on subjects such as allergic reactions, mode of action of repellents, etc. The text also gives