Acari are an extraordinarily diverse taxon, rivaling the insects in number of species (most of which are yet to be described) and habitats that they occupy. Formal courses in acarology, the study of mites, have become increasingly rare at universities, but the importance of mites and ticks in terms of biodiversity, conservation, nutrient cycling, and pest management has not diminished. Indeed, their status as agricultural pests has continued to increase since the 1950s with the widespread use of broad-spectrum insecticides.

Although mites and ticks are significant as plant and animal pests, vectors of human diseases, and biological control agents, most economic entomologists and pest managers have rather superficial knowledge of their basic structure, function and identification, and their similarities to and differences from the insects. Hoy’s book represents a major contribution to acarology and Integrated Pest Management by one of the preeminent contemporary authorities in both areas.

The 25 chapters of her book are organized into eight parts that in total present a current and comprehensive treatment of all aspects of mite biology, ecology, and control. Each chapter presents a well-considered selection of citations that provide an entry into the literature on each topic. Parts I and II cover general attributes of mite morphology, biology, collection, and rearing, with chapter 5 providing an overview of strategies and tactics for mite management.

Part III is comprised of a series of chapters on phytophagous mites and their natural enemies. The first five of these chapters focus on those families and superfamilies that include some of the most significant plant pests: the Tetranychidae, Tarsonomiidae, Eriophyoidea, Tenupalpidae, and Penthalidae. Each chapter is logically structured to offer information on biology, identification, damage, and control of key pest species. Hoy is careful to mention benefits of certain phytophagous mites as weed control agents, something that is often overlooked. The theme of ‘Friends or Foes’ is continued in chapter 11 where eight families of plant-associated mites are covered in more limited detail. The next three chapters are devoted to predators of mites and microbial associations with mites and ticks. The first of these chapters is comprised entirely by the Phytoseiidae, many species of which have become cornerstones for biological control of phytophagous mites in a number of Integrated Mite Management (IMM) programs. Rather than providing specific descriptions of individual phytoseiids, Hoy has chosen instead to treat them more generally in terms of their ecology, behavior, and approaches to mass-rearing. This enables her to incorporate specific knowledge of individual species in such a way as to permit a broader appreciation of those attributes that contribute to making this important group of predators so successful.

Part IV builds on the knowledge base established in the previous chapters to introduce five excellent examples of IMM programs for phytophagous mites. The first of these examples is the classical biological control of the cassava green mite in Africa, the largest classical biological control program initiated against a spider mite. Hoy takes this opportunity to detail the key steps of a classical biological program, and then goes on to describe the cassava green mite program in great detail including problems that were experienced along the way. The cassava green mite story is interesting because spider mites are seldom targets for classical biological control. More typical of successful IMM programs are those described in subsequent chapters on Washington state apples, California almonds, citrus in Florida and California, and on ornamental plants that variously rely on the integration of cultural practices, conservation of natural enemies, monitoring, and augmentation. The final four parts of the book address the role of soil mites in agriculture, and biology and management of pest mites of honey bees (Varroa and tracheal mites), ticks, and pests of stored products and households.

Hoy’s book is accompanied by a CD with valuable supplementary materials including color photographs of several of the pest and beneficial mites covered in the text and mite damage symptoms. These photographs are a particularly useful addition to those printed in the text as they further facilitate practical identification. The CD also contains a number of full-text publications related to pest and beneficial mites and Integrated Pest Management including useful works such as An Illustrated Guide to the Plant Abnormalities Caused by Eriophyid Mites in North America by Keifer et al. (1982) and Stafford’s (2007) Tick Management Handbook.

Standard texts in the personal libraries of economic entomologists or pest managers who must deal with identifying and managing mites might include Baker’s (1952) Introduction to Acarology, Jeppson et al.’s (1975) Mites Injurious to Economic Plants, and A Manual of Acarology by Krantz and Walter (2009). Hoy’s Agricultural Acarology: Introduction to Integrated Mite Management is a welcome addition to these classic works, updating many aspects of the earlier texts, particularly as they relate to management, while establishing the comprehensive background necessary to develop and implement an IMM approach. This book would be an excellent basis for a course in agricultural acarology, or a supplementary reference for a course in arthropod pest management.

References Cited