
For many years thysanopterists have automatically turned to ‘Lewis, 1973’ (Thrips their Biology, Ecology and Economic Importance) for an introduction to this fascinating group of insects. However since its publication, our knowledge of many aspects of thrips biology has developed rapidly and the need for a replacement has become evident. Thrips as Crop Pests brings together 20 of the world’s leading experts in the field, resulting in an excellent overview of this economically important and biologically interesting group. It provides an authoritative, comprehensive and accessible text based on over 3000 references, most of them from the last 20 years.

The book opens with introductory chapters covering thrips biology, behaviour and morphology, with particular emphasis on aspects of relevance to pest species. These chapters provide an invaluable background to the development and morphology of thrips, reproductive behaviour, feeding and dispersal, and culminate in a discussion of their biological and systematic diversity. The chapter dealing with flight and dispersal is particularly notable, and covers flight morphology and capability, dispersal flights and the very important aspect of artificial dispersal by man.

Following these introductory chapters, the book continues by considering thrips’ abundance and distribution on crops. Factors affecting population dynamics, population modelling and forecasting outbreaks, are addressed in detail. Separate chapters cover predation (including very useful tables of life history and population characteristics of thrips predators), Hymenopterous parasitoids and parasitic nematodes, and fungal pathogens. As the size and behaviour of thrips frequently result in them being viewed as difficult insects to work with, the chapters dealing with field and laboratory techniques, and the culturing of thrips and their parasitoids, may prove a valuable component which does much to encourage future research.

Based on the earlier chapters, the third and final part of the book deals with direct and indirect crop injury and various approaches to the control of thrips. As a whole the section provides a comprehensive overview that will be of interest to students, researchers and practitioners alike. Finally, catalogues of significant pest species, damage symptoms and other useful information have been compiled in appendices for easy reference.

As is the case for any book of this magnitude, individual specialists will find aspects of each chapter which might have been dealt with differently. For example, the chapter on biological diversity correctly suggests that establishment of pest thrips is not a simple function of introduction, but does not discuss much of the extensive general literature on this vital dispersal and quarantine issue. In other areas of the book more emphasis could have been put on the development of resistance to insecticides in thrips, which has contributed to their rise in importance. However, such comments are relatively minor and certainly will not reduce the impact of this major work.

In summary, this book provides a comprehensive synthesis which will remain an essential addition to the bookshelves of any serious student of the biology and control of thrips for many years to come.

K. Walters


It is common to reflect on those scientific innovations which have had a major impact on the development of Homo sapiens; conventionally the wheel, internal combustion engine and silicon chip are often cited as being of fundamental importance.

However these, and others, all pale into insignificance when placed alongside the emergence of settled agriculture without which they, and a myriad of others (including non-scientific issues such as the organization of society and general matters cultural and artistic), would probably have never advanced to anything like the extent to which we are familiar.

The description of the emergence of agriculture is a fascinating topic and this book accomplishes the task with admirable depth, clarity and insight into the detailed archaeological research that has made such a significant contribution to our knowledge of this period of human history. The author has called upon
evidence from several regions of the world to demonstrate that there were parallel developments in agricultural innovations in places other than the ‘fertile crescent’ in the current Middle East which has sometimes been regarded as their only location.

It is intriguing to reinforce the notion that integration within an existing climate and topography were of such fundamental importance – regular supplies of water and well drained slopes were essential. Capitalization of plant resources was based on the consecutive (and successful) harvesting, storage and processing of key wild species which then developed into manipulation, control and cultivation leading to increased productivity.

Those plants that were brought under cultivation would already have undergone some form of selection whilst in the wild state – in all likelihood, harvesting of those individual plants which retained their seeds to a greater extent until harvest would, alongside the probable interest in those with larger endosperms, have made harvesting of greater amounts easier (a process which ironically would have encouraged those plants which would be less successful if not then tended) and where seeds would have been clustered at a specific location rather than distributed across the whole.

The move from harvesting wild species to controlled cultivation of select plants would have been gradual but, once established, would have lead to further key innovations including ploughing and irrigation. The move to colonize more marginal land had started and the, continuing, battle between humans and nature had started in earnest.

Animals were in all probability an important component of pre-agricultural societies (for draft purposes) but true domestication, as opposed to co-existence, would have required a subtle appreciation of those components of animal behaviour which rendered the animal more likely to be domesticated. Those would have included animals being able to live in large social groups with a well-structured hierarchy (to avoid undue aggression) without undue fear of humans. Consumption of animal products would have made a dramatic improvement to nutrient intake (there are those who argue that regular consumption of certain key nutrients found only in meat was a crucial stage in human development); whilst this would have preceded domestication, the regularity of supply was now an important alternative to the greater risks associated with success at hunting.

It is perhaps worth noting that continued increases in agricultural productivity are no less important to the improvement of human prosperity than they were 7000–10000 years ago. Those who believe otherwise (and they represent a substantial and increasingly vocal and powerful proportion of the affluent West) would do well to reflect on the fundamental importance of the contribution of a full stomach to the sum of human happiness; those who are not blessed with the benefits of an uninterrupted food supply (well over two-thirds of the world’s population), and the intellectual freedom that goes with it, cannot be ignored in discussions conducted from comfortable armchairs.

J. WISEMAN


This book describes the fundamental principles of plant breeding, conventional breeding procedures and provides detailed information on the different plant breeding approaches currently being employed. It does not set out to be a comprehensive plant breeding review but rather to provide a good starting point where information on a particular topic can be obtained. The book is in three parts. Part 1 contains chapters describing the historical background to plant breeding as well as the different reproductive systems, male sterility and self-incompatibility. It also includes a fascinating chapter describing the different methods of artificial hybridization, with practical methods on how to carry out the techniques and the plant species to which they can be applied. Part 2 includes comprehensive descriptions of different plant breeding methods. These are described in great detail with examples of the species on which they are used, as well as some of their limitations. It concludes with chapters on insect resistance breeding, breeding for specific traits and measurement of these traits, as well as chapters on the new technologies of plant tissue culture and genetic engineering. This section should be invaluable to students and researchers seeking some basic information on the different techniques used in conventional plant breeding. Part 3 contains three chapters outlining the basics of variety release, the mechanism of plant variety protection and plant breeder’s rights with a final chapter on hybrid seed production methodologies. The book contains a comprehensive list of references and provides an excellent starting point for those new to the subject.

A. MARSHALL