

African Cereal Stem Borers: Economic Importance, Taxonomy, Natural Enemies and Control

Edited by A Polaszek, International Institute of Entomology, UK

An assemblage of approximately twenty moth species belonging to the families Crambidae, Pyralidae and Noctuidae constitute the most important cereal pests in many parts of Africa. The caterpillars of these moths bore into the stems of maize, sorghum, millet and rice, often killing the plant, and are commonly known as stem or stalk borers. The cereals attacked are grown by smallholders to feed themselves and their families and are of great importance as the staple food for the population in most parts of Africa. Complex control measures, including the use of chemicals, are often inappropriate.

This book provides fundamental information necessary for formulating integrated pest management of African cereal stem borers, in particular any natural enemy component. Firstly, the economically important species are characterized regionally and according to their biology and host plants, both wild and cultivated. The taxonomy of the moths, their larvae and their natural enemies is examined in detail and techniques of rearing are described. Illustrated keys are provided for their recognition, and their distributions and hosts are listed. Finally, the control measures currently in use and those being investigated, are summarized.

This book is essential reading for applied entomologists, agronomists and extension workers with an active interest in cereal production in Africa and will be of value to all those concerned with integrated pest management in the tropics.

Contents:

Economic Importance

- Host Plants
- Maize: West and Central Africa
- Maize and Sorghum: East Africa
- Maize and Grain Sorghum: Southern Africa
- Sorghum: West Africa
- Millet: West Africa
- Rice: West Africa
- Rearing Maize and Sorghum Stem Borers

Taxonomy

- Lepidoptera: Introduction
- Noctuidae
- Pyraloidea: Crambidae, Pyralidae
- Larvae (Morphology)
- Larvae (Electrophoresis)

Natural Enemies

- Hymenoptera: Introduction
- Hymenoptera: Key to Families
- Bethyridae
- Braconidae
- Ceraphronidae
- Chalcidoidea
- Ichneumonidae
- Scelionidae
- Diptera
- Nematoda, Fungi, Protozoa, Bacteria and Viruses
- Predators

Control

- Integrated Pest Management
- Chemical Control
- Cultural Control
- Biological Control

Glossary

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Thysanoptera: An Identification Guide, 2nd Edition

L A Mound, CSIRO Entomology, Australia and G Kibby, formerly of the International Institute of Entomology, London, UK

A number of species of Thysanoptera (thrips) are increasingly important crop pests in many parts of the world, as well as in some cases being vectors of plant disease. Communicating the known information about a species of organism is dependent on our ability to recognise or identify it accurately. This book is a completely revised and rewritten edition of the standard, widely used manual on these minute flying insects written by J.M. Palmer, L.A. Mound and G.J. du Heaume and published in 1989 as *CIE Guides to Insects of Importance to Man 2. Thysanoptera*, which provides a practical identification guide on a worldwide scale. The previous version posed problems for students in terms of fluency in English & knowledge of dichotomous keys. However, this thoroughly updated edition incorporates a new set of pictorial keys, which have been developed and used very successfully for training courses at the International Institute of Entomology and which will greatly enhance the ability of the non-specialist to identify thrips to species.

Individuals of these insects can usually be identified only by examination under a microscope, often at high power. Within each species, individuals can vary in size, colour and shape and their appearance can be altered by techniques used in preparation. This booklet describes techniques used in the preparation of thrip specimens onto slides for identification and the means of identifying slide-mounted specimens most commonly encountered. It also introduces students to the biological diversity that is found amongst the Thysanoptera, their economic importance in terms of both damaging and beneficial effects, new identification techniques, additional information and taxa, glossary of technical terms, notes on each genus (described alphabetically within their families and subfamilies). Supplementary keys to species are also given within four genera that include several pest species (*Caliothrips*, *Frankliniella*, *Scirtothrips* and *Thrips*) along with new distribution records which have occurred since the publication of the first edition. It is an essential tool for applied entomologists and crop protection specialists involved in the control of crop pest thrips, and thrip taxonomists.

Contents:

Introduction

Publications About Thrips

Biology

- Biological Diversity
- Life Cycles
- Sex Determination and Sexual Dimorphism
- Dispersal
- Feeding

Economic Importance of Thrips

- Feeding Damage
- Virus Transmission
- Direct Effects
- Beneficial Thrips

Preparatory Techniques for Identifications

Thrips Classification

Thrips Identification

Characters Used in Identifications

Visual Keys to Genera

Figures for Species Keys

Sub-order Terebrantia

- Family Merothripidae
- Family Aeolothripidae
- Family Heterothripidae
- Family Adiheterothripidae
- Family Thripidae
- Sub-family Panchaetothripinae
- Sub-family Thripinae

Sub-order Tubulifera

- Family Phlaeothripidae
- Sub-family Idolothripinae
- Sub-family Phlaeothripinae

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Host Plant Index

Genera and Species Index

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