

## BOOK REVIEW

Hagstrum D.W., Klejdysz T., Subramanyam B., Nawrot J.,  
2013. *Atlas of Stored Product Insects and Mites*.  
AAAC International Inc., St. Paul, Minnesota, USA, 589 pp.  
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Without question this Atlas/Handbook provides the broadest and deepest information concerning stored product insects and mites ever published. The present edition of Atlas doubles the number of insect species covered in the "Atlas Owadów Szkodników Żywności" [Atlas of Insect Pests of Food] by J. Nawrot and T. Klejdysz published in 2009, and compiles extensive data on insects and mites infesting stored grain and food products throughout the World's continents. For this reason this handbook will be extremely useful not only for entomologists and acarologists but also for food technologists, flour-mills personnel, traders and ecologists and many other employee categories who will obtain good knowledge about the world's distribution of insect and mites infesting or contaminating food and seed plant products.

In one page Chapter 1 "Introduction" (p. 1) the authors explain that the book contents is arranged into seven chapters. They also explain that the book provides photos of 235 insect species that were ranked the highest as stored product pests out of 1.663 insect species (*Insecta*) species and covers 280 mite species (*Acarina*).

In Chapter 2 "Stored product insects" (p. 3–196) information on 235 stored-product insect species is presented and supported by color photographs. For each species the following information is given: (1) Dimension, (2) Common names, (3) Taxonomy, (4) Distribution, (5) Commodities, (6) Facilities, (7) Natural enemies, (8) Literature citations for life history. In this chapter a large table 2.3 lists "Numbers of stored-product insect species reported for each country and region". Of special interest is table 2.4 titled "Comparison of species list for nine countries that have reported large numbers of species which refers to the following countries: Australia, Brasil, China, Egypt, England, Italy, Nigeria, Turkey, USA. The table 2.5 titled "Insect species reported in countries other than those in table 2.4" refer to the following countries: Afghanistan, Albania, Algeria, Amur, Andaman Island, Andorra, Angola, Antigua, Barbados, the United Arab Emirates, Argentina and many other being well supported by references.

Chapter 3 "Classification and cross infestation of commodities" (p. 199–220) provides information on infestation of 28 categories of commodities by insects and a list of scientific names of plants.

Chapter 4 "Commodity suitability" (p. 221–265) contains very extensive table 4.1 "Suitability of commodities as food for stored-product insect development, fecundity, population growth and other tables supported by extensive list of references.

Chapter 5 "Infestation records" (p. 267–532) contains two tables. Table 5.1 "Commodities reported to be infested by each insect species and literature sources for these records" which includes the impressive number of 7003 bibliographic records (p. 268–512) and table 5.2. Species-commodity combinations with 10 or more literature records (p. 513–518). Apart of very interesting factual information this chapter is supported by impressive number of nearly 600 references.

Chapter 6 "Stored-product mites" (p. 533–575) contains the following three tables: table 6.1. "Mite species associated with stored products" (p. 534–565). Table 6.2 "Ranking of stored-product mite species by number of commodities per species" (p. 566). Table 6.3 "Families of mites associated with stored products" (p. 567). Table 6.4 "Mite genus name changes" (p. 568).

Chapter 7 "Pest management" (p. 577–589) contains the following tables: table 7.1 "Topics in books with broad coverage of stored product-insect pest management" (p. 580). Table 7.2 "Books covering fewer stored-product insect pests management topics in greater depth" (p. 581–582). Table 7.3 "Books that are very specialized covering only a few topics" (p. 583–584). Table 7.4 "Strengths and limitation of aeration" (p. 584). Table 7.5 "Strengths and limitations of biological control" (p. 584–485). Table 7.6 "Strengths and limitations of extreme temperature" (p. 585). Table 7.7 "Strengths and limitations of fumigation" (p. 585–586). Table 7.8 "Strengths and limitations of impact and pest removal" (p. 586). Table 7.9 "Strengths and limitations of ionizing radiation" (p. 586–587). Table 7.10 "Strengths and limitation of residual insecticides" (p. 587). Table 7.11 "Strengths and limitations of sanitation and pest exclusion" (p. 587–588). Table 7.12 "Combinations of pest management methods that have been evaluated" (p. 588–589).

The above short characteristic of the contents of the reviewed book clearly indicates that it is an extraordinary valuable compendium concerning various aspects of important stored product insects. For the above reasons I strongly recommend this treatise to attention of entomologists and acarologists and also recommend for all libraries having profile of life sciences and agricultural sciences.

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