INSECTS OF SUBTROPICAL FRUITS

Insects of Citrus and Other Subtropical Fruits. By HENRY J. QUAYLE. Comstock Publishing Company, Inc., Ithaca, N. Y. 1938. vii + 583 pp. Figs. 377. $5.00.

THIS treatise meets a need that has long been recognized by entomologists and fruit-growers who reside in subtropical regions. The significance of this statement will be appreciated particularly by individuals who have moved from temperate regions and engaged in the growing of subtropical fruits or engaged in pursuits dependent upon subtropical horticulture. Owing to the year-round mild temperature and the evergreen, everbearing, succulent nature of citrus and certain other subtropical fruits, insect control presents a more complicated problem than that known to the grower of deciduous fruits in temperate regions. The fight against insects infesting leaves, fruit and branches is continuous throughout the year in the growing of subtropical fruits. Treatments are rather expensive. In most districts at least one treatment annually must be made to citrus to control scale insects. A spray treatment costs about $25.00 an acre, and a fumigation treatment costs about $35.00 an acre. It behooves the grower to know the various insects, their life history and seasonal history, their degree of susceptibility or immunity to given insecticides, their natural enemies introduced and propagated by state and county agencies, and to know the facts and principles underlying or governing the effectiveness of insecticides and the application of insecticides.

For many years orchardists as well as entomologists, horticultural inspectors and pest control operators have had but limited sources from which to secure knowledge on the biology of insects affecting subtropical fruits and the diverse facts, concepts and practices concerned with the control of such pests. The most comprehensive treatise prior to Professor Quayle's book was "Insects Affecting the Orange," by H. G. Hubbard, a publication of 227 pages by the U. S. Department of Agriculture that appeared in 1885.

Professor Quayle has been an authority in the particular field for upwards of thirty years. In addition to notable work done in California, he has made two trips around the world on missions concerned with citrus insects. Coincident with the discovery of the Mediterranean fruit-fly in Florida and the work of eradicating it in 1929–30, he made a special survey of this pest in South Africa and the Mediterranean region. Appropriately, the book is world-wide in scope. The comparisons made of insect infestations in different regions and in relation to climatic conditions are of particular interest. The citrus insects of California have received special consideration. This is appropriate because in California pioneer work has been done in citrus fumigation, spraying, dusting, biological control, inspection and regulation.

The book has eighteen chapters. Chapter I gives brief characterizations of the various subtropical fruits, brief facts on the commercial production of such fruits in various parts of the world, a list of the principal insect pests of each fruit and a key to the principal citrus fruit insects and mites of the United States. Chapters 2 and 3 deal with citrus insects and mites of major importance, and Chapter 5 deals with citrus insects and mites of minor importance. Chapter 4 comprises a tabulated list of 33 species of Coccinellid beetles and 135 species of hymenopterous parasites that attack insects and mites of subtropical fruits. The tables also give data on host, stage attacked, region of the world from which the species was first obtained and citations to pages in the book where the species is discussed or referred to. One chapter each is devoted to insects and mites of the following crops: avocado, vinifera grape, Persian walnut, almond, pecan, fig, olive and date. Chapter 14 treats of insects of the oriental persimmon, the pomegranate and the sweet cherry. Chapter 15 deals with rodents, nematodes and snails; Chapter 16 with fumigation; Chapter 17 with spraying and dusting; and Chapter 18 with domestic plant quarantines that pertain to subtropical fruit insects.

The book is rich in illustrations of high quality. The text figures number 377, but the individual illustrations probably are several hundred in number, since in many instances several illustrations are included in a single text figure. The value of the book is greatly enhanced by the footnote references to the principal publications dealing with the topics discussed. The very complete index, comprising 27 pages and having subtropics indicated under principal topics, deserves special mention. For example, under the topic Oil Spray are listed page references to 36 subtopics on oil sprays. The book is substantially and attractively bound. The quality of paper and printing craftsmanship are excellent.

While the book is written primarily for the use of growers of subtropical fruits and persons engaged in entomological work concerned with this type of horticulture, it contains a great deal of information that should be interesting to entomologists in general and even to the general reader. The history of fumigation with deadly hydrogen cyanide gas and the details of the practice of this method of citrus insect control, extensively employed for the past fifty years, is intensely interesting. Equally interesting are the facts of biological control and the methods employed by some fifteen insectaries in California in rearing and releasing annually millions of parasitic and predaceous insects which attack the injurious insects.

RALPH H. SMITH