Pesticide Application: Principles and Practice


This book is an edited treatment written by authors who are experts in their fields of endeavor and specialization. It covers the use, development, and application of chemical pest control agents for a variety of crop pests and public health arthropods, snails, and vertebrate pests. General and specific uses of pesticides in the context of IPM (insect pest management) programs are discussed, with no rigorous evaluation or treatment of IPM procedures and strategies.

The subject matter is covered and discussed in 19 chapters. The first nine chapters deal with principles forming a basis for understanding pest control systems and making choices and implementing uses of pesticides. At the outset, the chemistry and classes of pesticidal chemicals and their formulations are discussed, the role of adjuvants influencing efficacy of formulations is described, and physics of particles and meteorological factors influencing droplet size, velocity, and impaction rates are reviewed. Methods and instruments for measurement of physical parameters related to application of pesticides as well as weather elements are briefly discussed. In addition to the physico-chemical aspects of pesticides and their formulations, some important if not all biotic considerations in relation to the selection of a given control agent are elaborated on. In this context, emergence and occurrence of resistance, the role of economic thresholds, monitoring and forecasting of pest problems, selective toxicity, and ecological selectivity are touched on rather briefly.

Next the text dwells on mechanical and physical aspects of ground and aerial applications of pesticidal formulations. Relationships between site and size of spray droplets and between droplet size and volume of spray are discussed. Various types of nozzles, such as hydraulic energy nozzles, thermal energy nozzles, gaseous energy nozzles, and others, are adequately described. The desirability of electrostatic particles to provide for increased impingement rates on surfaces is also covered.

Important points with regard to field experimentation have been raised providing information on various stages of field testing and evaluation. Consideration is given to experimental design, replication, randomization, drift problems, interplot effects, and variation and data collection. The next logical stage in the use pattern of pesticides is the subject of “economics of diseases, problems associated with nursery stock (including seeds and seedlings), saplings and young stands, mature stands, and finally that of logs and timber. Important points in this regard are concisely presented.

A chapter on the control of migratory locust, some lepidopteran (several species) pests, and the dipteran disease vectors blackflies. There is one chapter on snails, and one chapter on weed control. A chapter on parasitic nematodes is also included. The properties, and application of specific pests are included.

The book includes five chapters on insect control, and control of noncrop pests and vertebrate pest control. Chapter five on control of dipteran vectors of human diseases, and control of insect vectors such as mosquitoes, tsetseflies. Control strategies are discussed for major human disease vectors and their vectors abound. Control of ectoparasitic diseases of domestic animals is discussed concisely. The importance and chemical control of lice, fleas, kissing bugs, bed bugs, ticks, and mites is presented.

Chapters on the control of snails, and on vertebrate pest control consider control agents, their properties, for snails and vertebrates. Efficacy are discussed. For the control of ectoparasites on domestic animals and control of noncrop pests and vectors of disease agents. Considerable information on techniques and applications. In vertebrate pest control, both the application of baits and repellents and control of rodents and avian pests.

This book, although lacking organization, is an approach to the treatment of pesticides as a source of information for practitioners. It is an adequate, although not extensive discussion, which will lead the reader to further information.

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Resource Inventory and Baseline Information for Developing Countries


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