

# Preface

Pests contribute to shortages of food in several ways. They destroy our food and attack us personally. Combined arthropod, disease and weed pests contribute to malnourishment and death to nearly two thirds or more than 66% of the total world population of 7.2 billion people.

Approximately 40% of all the world's food production is lost or destroyed by insects, diseases, and weeds. This loss occurs despite the application of the nearly 3 million tons of pesticides applied to our crops annually. Once the food is harvested an additional 20% of our food is destroyed; in addition to pests, pesticides cause human deaths and damage our environment. Consider there are about 3 million human pesticide poisonings worldwide, with an estimated 220,000 deaths each year.

The widespread use of pesticides is responsible for bird and fish deaths, destruction of many beneficial natural enemies, pesticide residues on and in foodstuffs, loss of vital plant pollinators, ground and surface water contamination, selection for resistance in pests to pesticides, and other environmental problems.

Pesticides can be reduced to *zero* even in the heavily treated crops in the United States—corn and soybeans. A 22-year long experiment carried out in Pennsylvania (see Chap. 6 – this volume) demonstrates this. More research is needed to reduce pesticide use while reducing the negative environmental side-effects of pest control.

The contributors to this book recognize the value of pesticides for pest control and recognize the negative impacts pesticides have on environmental quality and human health. In many instances, they suggest techniques that can be employed to reduce pesticide use while maintaining crop yields. Reducing pesticide use 50% or more while improving pest control economics, public health, and the environment is possible. In fact, successful programs using various techniques in countries like Sweden and Indonesia have reduced pesticide use by close to two-thirds. Clearly we can do better to improve pest control and protect the environment and human health.

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