

Fate Of Pesticides In The Environment And Its Bioremediation

The coastal tropics comprise some of the most sensitive and yet the most understudied ecosystems in the world. Coastal plains and river valleys are also home to agriculture on a vast scale, and it is not surprising to find that streams and rivers receive the majority of agricultural runoff, carrying the residues of insecticides, fungicides and other

This book is a compilation of 29 chapters focused on: pesticides and food production, environmental effects of pesticides, and pesticides mobility, transport and fate. The first book section addresses the benefits of the pest control for crop protection and food supply increasing, and the associated risks of food contamination. The second book section is dedicated to the effects of pesticides on the non-target organisms and the environment such as: effects involving pollinators, effects on nutrient cycling in ecosystems, effects on soil erosion, structure and fertility, effects on water quality, and pesticides resistance development. The third book section furnishes numerous data contributing to the better understanding of the pesticides mobility, transport and fate. The addressed in this book issues should attract the public concern to support rational decisions to pesticides use.

Fate of Pesticides on Soil and Their Impact on Water Environment

Environmental Fate Modelling of Pesticides

Pesticide Chemistry: Fate of pesticides in environment

Implications for Environmental Risk Assessment

Pesticide chemistry

Fate of Pesticides in Environment

This book reviews the occurrence and fate of pesticides in soils, their impact on soil quality and soil ecosystems, and it also provides a comprehensive overview of the latest prevention and remediation strategies of soil contamination. Chapters from expert contributors cover topics such as soil pollution monitoring, the role of dissolved organic matter on the environmental fate of pesticides in soils, the effects of pesticides on soil microbial communities, plant uptake of pesticides from soils, and nano-based pesticides. Particular attention is given to the latest physicochemical and biological technologies developed to immobilize or degrade pesticides, preventing soil and water pollution. Given its scope, the book will appeal to researchers, professionals, including environmental chemists, engineers, ecologists, and policy-makers responsible for soil management.

The Use and Fate of Pesticides in Vegetable-based Agro-ecosystems in Ghana reviews current knowledge on pesticides use in vegetable farming in Ghana and establishes the fate of pesticides in situ in tropical vegetable-based agro-ecosystems as well as their environmental and public health impacts on selected population groups. A field survey showed that vegetable farmers often spray pesticides on prophylactic basis due to lack of information. Although some farmers may be aware of pesticide hazards, adequate protection is hardly taken to minimize risks. About 70% of exposed farmers had a reduction of 30% or more in whole blood acetylcholinesterase activity. About 95% of the farmers interviewed reported symptoms attributable to pesticide exposure. Water, waterbed sediment, and vegetable crops were checked for residues of the pesticides monitored on the farmers' fields. Residues detected in water and waterbed sediment indicated that these have come from runoff from vegetable fields and that the measured levels were transient. Pesticide residue levels detected in five vegetable crop types (tomato, cabbage, pepper, onion, and eggplants) were correlated to the minimal risk levels (MRLs) set by the United States Agency for Toxic Substances and Disease Registry (ATSDR). Mean intakes of residues by 22- to 75-year old adult farmers were found to be low and did not seem to be associated with health risk. Data on persistent pesticide residues in farmers' breast milk and blood serum indicated the presence of DDTs, dieldrin, HCB, and HCHs. When daily intakes of DDTs and HCHs to infants through breastfeeding were estimated, some farmers accumulated these compounds in breast milk above the threshold for adverse effects, which raise concerns on children health. Evidence was found for persistence of isomers of endosulfan and its sulfate metabolite in tomato cropped soil and plant tissues. However, the residue concentration in tomato fruits decreased to a level below the Codex MRL given a two-week pre-harvest interval during which no application of the chemical is done. The publication concludes that successful action to reduce the negative impact of pesticides requires sustained, low cost, and well-targeted training interventions. Students and scientists

Distribution, Fate and Effects

From the Laboratory to the Field Scale

Fate of Pesticides in the Humid Tropics

Occurrence, Fate, Control and Remediation

Studies Associated with Two Workshops Held at the Nuclear Research Centre, Jülich and the LL.F.A. Neustadt, Germany in 1989 and 1990

Toxicity, Environmental Impact, and Fate

Pesticide Profiles: Toxicity, Environmental Impact, and Fate is like three books in one-it is a profile containing specific information about 137 pesticides, a primer of environmental toxicology, and an extensive trade name index. Profiles of each pesticide contain regulatory information, toxicity assessments, environmental fate data, physical properties, and acceptable exposure limit values. What these values and data mean in terms of human toxicity is clearly interpreted as well. The book also describes the meaning of carcinogenicity and how it is assessed in non-technical terms the non-expert can understand. Readers with a technical background are provided with the data to make their own judgments. In addition to information about specific pesticides, there are sections on general classes of pesticides, such as organophosphates. This information allows readers to make inferences about any pesticide in a class, even if a profile is not provided.
Pesticide Profiles: Toxicity, Environmental Impact, and Fate goes beyond the usual listings of toxicity values or environmental half-lives to offer a broad understanding to readers of various backgrounds and interests.

Fate of Pesticides in Large Animals ...

Pesticides in the Soil Environment

Implications for Environmental Risk Assessment : Proceedings of a Workshop Organised by the Health Council of the Netherlands, Held in Driebergen, the Netherlands, April 22-24, 1998

Application to Insecticides Used in Vegetable Crops

The Fate and Degradation of Selected Current-use Pesticides in the Environment

The Fate of Nutrients and Pesticides in the Urban Environment

The Use and Fate of Pesticides in Vegetable-Based Agro-Ecosystems in Ghana

"The contributors provide a perspective on the fate and transport of pesticides in the soil environment with the goal of helping evaluate the effectiveness of pesticides for pest control and the impact of pesticide use on environmental health. The publication includes discussion on the pathways of pesticides from their entry into the environment through their progression in the various retention, transformation, and transport processes under various conditions."

Global pesticide use is currently estimated at approximately 2.5 billion kg per year (Pimentel et al., 1998). To be effective, pesticides need to persist for a certain period of time. However, the longer their persistence, the greater the potential for transport of a fraction of the amount applied away from the target area. Pesticides are dispersed in the environment by water currents, wind, or biota. Pesticides can directly contaminate ground and surface waters by leaching, surface run-off and drift. Pesticides can also be transported through the atmosphere. Following application, pesticides may volatilize from the crop or the soil. Finally, wind erosion can cause soil particles and dust loaded with pesticides to enter the atmosphere. The extent to which pesticides enter the air compartment is dependent upon many factors: the properties of the substance in question (e. g. vapour pressure), the amount used, the method of application, the formulation, the weather conditions (such as wind speed, temperature, humidity), the nature of the crop and soil characteristics. Measurements of pesticide concentrations in the atmosphere within a few days (Spencer and Claiath, 1990; Taylor and Spencer, 1990; Van den Berg et al., this issue).

Pesticides in Soils

An Expert System for Assessing the Fate of Pesticides in the Subsurface : Phase Two Report Development of the Basic Expert System

Proceedings of a workshop organised by The Health Council of the Netherlands, held in Driebergen, The Netherlands, April 22–24, 1998

Instructor's Manual with Text and Additional Information

Handbook of Environmental Fate and Exposure Data for Organic Chemicals: Pesticides

Fate of Pesticides in the Environment

V.1 Large production and priority pollutants. v.2 Solvents. v.3 Pesticides. v.4 Solvents 2.

*Fate of Pesticides and Chemicals in the Environment*John Wiley & Sons

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Fate of Pesticides in the Aquatic Environment

Pesticides in the Modern World

Proceedings

An Expert System for Assessing the Fate of Pesticides in the Subsurface, Phase Three Report : Compilation of a Data Base for Testing EXPRES.

Progress in Pesticide Biochemistry and Toxicology, Environmental Fate of Pesticides

Recent policy decisions aimed at improving and safeguarding regional surface and subsurface water quality often result in activities at state and local levels to regulate the sale and/or use of many common lawn fertilizer and pesticide products. Clear, comprehensive distribution of the research data generated during the last decade on the environmental fate of fertilizer nutrients and plant protection chemicals in the urban environment is critical to enable informed decisions by our public officials. This book records the proceedings of a RISE-ACS co-sponsored workshop (October 12-13, 2005) designed to provide a forum for turf researchers and environmental scientists to present research and practical information addressing the realities of turfgrass risk/benefits and how appropriate maintenance practices performed on urban lawns can impact water quality.

The expert system being developed is designed to aid regulatory personnel in their assessment of the potential for pesticides to contaminate the soil and shallow groundwater environment. EXPRES (EXpert system for Pesticide Regulatory Evaluation Simulations), consists of 2 existing numerical models that are used to simulate the transport and transformation of pesticides in the unsaturated zone, coupled with a knowledge-based system that guides the user through the choice of all the necessary information for characterizing the geological, physical, climatic, hydrogeological, pedological and agricultural setting of typical agricultural regions across Canada. This report describes the development of a data set to be used to test and validate the expert system. All the parameters required by the 2 pesticide models for aldicarb use in a P.E.I. potato field have been compiled. The data set consists of information from 4 general areas: physical and chemical properties of the pesticide, the pedological and hydrogeological characteristics of the site, the farm management practices, and meteorological data for the agricultural setting.

Physico-chemical Properties and Environmental Fate of Pesticides

Fate of Pesticides in Large Animals

Modelling the Fate of Pesticides in Soil

Fate of pesticides in environment

Determination and Identification of Dead End Degradation Products of Selected Pesticides and a Hydrological Tracer by Combination of Experimental and in Silicio Methods

Environmental Fate of Pesticides

Although chemical pesticides safeguard crops and improve farm productivity, they are increasingly feared for their potentially dangerous residues and their effects on ecosystems. The Future Role of Pesticides explores the role of chemical pesticides in the decade ahead and identifies the most promising opportunities for increasing the benefits and reducing the risks of pesticide use. The committee recommends R&D, program, and policy initiatives for federal agriculture authorities and other stakeholders in the public and private sectors. This book presents clear overviews of key factors in chemical pesticide use, including: Advances in genetic engineering not only of pest-resistant crops but also of pests themselves. Problems in pesticide use--concerns about the health of agricultural workers, the ability of pests to develop resistance, issues of public perception, and more. Impending shifts in agriculture--globalization of the economy, biological "invasions" of organisms, rising sensitivity toward cross-border environmental issues, and other trends. With a model and working examples, this book offers guidance on how to assess various pest control strategies available to today's agriculturists.

Fate of Pesticides in Large Animals covers the proceedings of the 1976 Fate of Pesticides in Large Animals symposium. The symposium is held at the Centennial Meeting of American Chemical Society and sponsored by the Pesticide Chemistry Division of the ACS. It aims to focus on the fate of pesticides in large animals and to assemble a thesis on the subject covering its theoretical and practical significance. In this book, large animals are particularly considered, because they often metabolize chemicals differently than small laboratory rodents. These differences may prove a basis for the development of concepts pertinent to the phenomenon of selective toxicity. This book is divided into three sections encompassing 14 chapters. The first section delineates the rationale of the symposium and presents topics applicable to all facets of large animal metabolism. The second section focuses on comparative metabolism of selected groups of pesticides, including phenoxy herbicides, insect growth regulators, fungicides, and halogenated hydrocarbons. The third section deals with specific compounds and/or specific large animal species. It includes mirex, chlordane, dieldrin, and polychlorinated biphenyls; p,p'-DDT and p,p'-DDE in pig; phenyl N,N'-dimethylphosphorodiamidate; croneon; and Vacor rodenticide. This book is an invaluable resource for chemists, biochemists, researchers, and toxicologists.

Fate of Pesticides in the Atmosphere

Risks and Benefits

Proceedings of a Technical Seminar

Fate and Transport of Pesticides in a Virginia Coastal Plain Soil

Lysimeter Studies of the Fate of Pesticides in the Soil

Abstract: This is a compilation of the proceedings of a seminar of the same title held in Sacramento, CA on March 4 and 5, 1985. It includes sections on pesticide classes, physicochemical fate processes, and case studies of the reaction of several pesticides in environmental situations. Helpful information for growers, applicators, and advisors is provided.

A result of important bilateral scientific agreements between the U.S. and the Soviet Union on the fate of chemicals and pesticides in the environment. Written by experts in both countries, it familiarizes the reader with recent state-of-the-art research being conducted in the areas of agricultural management and water pollution control. A number of models are provided to give the reader a concise grasp of exposure and ecological risk assessments involving these pollutants. Focuses on the necessity to improve our deteriorating standards of public health, environmental science and technology with a total systems approach through the pooled talents of scientists and engineers.

An Expert System for Assessing the Fate of Pesticides in the Subsurface : Users' Manual EXPRES

Fate of Pesticides in Soils: Toward an Integrated Approach of Influential Factors

An Expert System for Assessing the Fate of Pesticides in the Subsurface, Phase Four Report : Verification of Pesticide Models Incorporated in EXPRES.

The Future Role of Pesticides in US Agriculture

Pesticide Profiles

This book is concerned with modelling the fate of organic substances in the soil. Once a chemical enters the soil it is subject to various transformation processes. It partitions between the liquid, solid and gaseous phase, it is sorbed to different binding sites with a different strength of bonding, it may decay by a simple chemical process or it may be transformed by microorganisms. Solute transport through soil and subsurface is mediated by water flow and is strongly influenced by solute sorption. To complicate matters, soil structures are heterogeneous. All these processes are embedded in a spatio-temporal hierarchy. The book brings together many different aspects of environmental fate modelling of pesticides comprising such diverse subjects as, e.g., compartment theory, nonlinear biological degradation models, modelling toxicity, parameter identification, coupling of physical and biological processes, pedotransfer functions, translation of models across scales, coupling geographical information systems with models, and FUZZY-approaches. The EXPRES expert system is being developed to aid regulatory personnel in their assessment of the potential for pesticides to contaminate the soil and shallow groundwater environment. The expert system, known as EXPRES (EXpert system for Pesticide Regulatory Evaluation Simulation), consists of two existing numerical models that are used to simulate the fate of pesticides in the unsaturated zone, coupled with a knowledge-based system that guides the user through the choice of all the necessary information for characterizing the physical, climatic, hydrogeological, pedological, and agricultural setting of typical agricultural regions across Canada. This report describes the verification of the modified versions of the two pesticide models (LEACHM and PRZM) and their interaction with the EXPRES expert system; reviews the modifications made; and describes tests conducted to verify them.

Predictions of the Environmental Fate of Twenty-one Pesticides in the Rhein [i.e. Rhine] River Based on Their Physical/Chemical and Environmental Properties

Processes, Impacts, and Modelling

Pesticide Residues in Coastal Tropical Ecosystems

Fate of Pesticides and Chemicals in the Environment

Fate of Pesticides in the Atmosphere: Implications for Environmental Risk Assessment