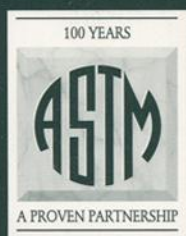


Pesticide Formulations and Application Systems

E I G H T E E N T H V O L U M E

*John D. Nalewaja, G. Robert Goss,
and R. Scott Tann, editors*



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Foreword

This publication, *Pesticide Formulations and Application Systems: Eighteenth Volume*, contains papers presented at the symposium of the same name held in San Diego, California, on 14–15 October 1997. The symposium was sponsored by ASTM Committee E35 on Pesticides. The symposium co-chairmen were John D. Nalewaja, North Dakota State University, G. Robert Goss, Oil-Dri Corporation, and R. Scott Tann, Witco Corporation.

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Peer Review Policy

Each paper published in this volume was evaluated by two peer reviewers and at least one editor. The authors addressed all of the reviewers' comments to the satisfaction of both the technical editor(s) and the ASTM Committee on Publications.

To make technical information available as quickly as possible, the peer-reviewed papers in this publication were prepared "camera-ready" as submitted by the authors.

The quality of the papers in this publication reflects not only the obvious efforts of the authors and the technical editor(s), but also the work of the peer reviewers. The ASTM Committee on Publications acknowledges with appreciation their dedication and contribution of time and effort on behalf of ASTM.

Contents

Overview	vii
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CURRENT ISSUES

The Future of Pesticides and Adjuvants—A. G. DEXTER	3
Endocrine Issues Update—A. J. DUGGAN	16
The Regulatory Role of the Applicator in Developing, Approving, Using, and Monitoring Pesticides—J. R. BECK, L. R. MARTIN, AND R. H. GILES, JR.	30

APPLICATION TECHNOLOGY

Pest Control With Sprays—A Look into the Past and a Glimpse of the Future—T. M. WOLF	47
Direct Chemical Injection and Small Volume Returnable Container Technology—O. R. SWENSON AND F. A. MANTHEY	58
Effects of Flow Rate and Rotational Speed on Performance of Two Rotary Atomizers—M. SALYANI	70
Qualitative Properties of Spray Deposits—Patterns and Statistics— R. A. DOWNER, R. A. J. TAYLOR, T. A. EBERT, R. S. THOMPSON, AND F. R. HALL	80
Effects of Adjuvants and Dynamic Surface Tension on Spray Properties Under Simulated Aerial Conditions—R. W. DEXTER AND E. W. HUDDLESTON	95
Spray Retention is Affected by Spray Parameters, Species, and Adjuvants— D. E. BRUNS AND J. D. NALEWAJA	107
Surfactants Differ in Their Effect on Droplet Retention, Droplet Spread, and Herbicide Efficacy—F. A. MANTHEY, Z. WOŹNICA, AND P. MIŁKOWSKI	120
Spreading Mechanisms of “Superwettters” on Hydrophobic Surfaces— A. D. NIKOLOV, D. T. WASAN, AND K. KOCZO	131

Trisiloxane Surfactants—Mechanisms of Spreading and Wetting—J. VENZMER AND S. P. WILKOWSKI	140
PESTICIDE FORMULATIONS AND ADJUVANTS	
Methyl Vinyl Ether Maleic Acid Half Ester Copolymers as Dispersing Agents in Aqueous Flowable Formulations—J. F. CURRY, R. GOEHNER, JR., AND K. S. NARAYANAN	155
Developing Emulsifiable Concentrate Formulations Using Droplet Size and Experimental Design Software—B. J. BUTLER AND A. K. SCHULTZ	168
Fatty Methyl Esters as Solvent Alternatives for Emulsifiable Concentrate Formulations—P. R. SKELTON AND K. L. TURPIN	185
Dearomatized Tailor Made Hydrocarbon Fluids in Pesticide Formulations— P. D. FRISCH AND R. A. VERBELEN	195
Deactivated Clay Carrier—J. STEIN, D. R. TAYLOR, AND N. SVIDOVSKY	207
Pesticide Stability Versus Clay Carrier Surface Acidity—D. R. TAYLOR, J. STEIN, AND N. SVIDOVSKY	215
Liquid Matrices for Insecticides for “Pour On” Applications in Aqueous Medium—Amitraz as a Case Study—D. I. JON, D. I. PRETTYPAUL, M. J. BENNING, K. S. NARAYANAN, AND R. M. IANNIELLO	228
Formulation and Delivery Systems for Enhanced and Extended Activity of Biopesticides—B. N. DEVISETTY, Y. WANG, P. SUDERSHAN, B. L. KIRKPATRICK, A. J. CIBULSKY, AND D. BIRKHOLO	242
Correlation of Adjuvant Physico-Chemical Properties and Glyphosate Efficacy—J. SUN AND M. SINGH	273
Physico-Chemical Properties of Several Commercial Organosilicones, Their Blends, and Selected Other Adjuvants—J. SUN AND C. L. FOY	281
Methodology for Evaluation of Glyphosate Formulations—H. DE RUITER, E. MEINEN, AND A. J. M. UFFING	294
Fluorescence as a Tool for Optimizing Adjuvants with a Photosynthesis- Inhibiting Herbicide—H. DE RUITER, A. J. M. UFFING, AND E. MEINEN	304
Surfactant Phytotoxicity to Barley Plants and Calli—F. A. MANTHEY AND L. S. DAHLEEN	317
The Potential of Corn Syrup as an Adjuvant for Postemergence Herbicides—F. C. ROGENBUCK, J. J. KELLS, AND D. PENNER	330
Author Index	339
Subject	341

Overview

This book is a compilation of information from the 18th ASTM Symposium on Pesticide Formulations and Application Systems, October 14 and 15, 1997, San Diego, California. Pesticides are used extensively by nearly everyone and are a major component for modern productive crop and livestock production throughout the world. Many factors are involved in making pesticides efficacious. Formulations must be stable and provide for easy application with minimal off target movement. The optimization of pesticide usage requires a continual search to understand the basic principals involved in the many steps from pesticide synthesis to application. This Symposium provided for an exchange of information among application, formulation, and synthesis professionals from academia, government, and industry.

Current issues. The Symposium began with presentations on the impact of pesticide and insect resistant crops on pesticide and adjuvant usage and regulatory concerns. Some topics discussed were the advantages and disadvantages of transgenic crops and potential shifts in pesticide usage. Endocrine disruption by pesticides and many other materials is a recent societal concern. Also discussed were the basic principals of endocrine disruption, compounds considered disrupters, and the activities of the Endocrine Disrupter Screening and Testing Advisory Committee that was established to help EPA with guidelines for the Congressional set date of August, 1999.

Application technology. Application of pesticides varies with formulation, spray volume, droplet size, and uniformity. Information is given on innovations in pesticide spray applications; influence of species, spray volume, droplet size, adjuvant type and amount on spray retained; closed systems for spray application; spray distribution patterns; mechanism of spray droplet wetting and spreading; and surface tension affects on droplet spectrum.

Pesticide formulations and adjuvants. Formulation of chemical and biological pesticides is important to both ease of application and product efficacy. Various components for liquid, flowable, and granular pesticide formulations are discussed in several of the papers. The surface acidity of clay carriers relative to pesticide stability, the use of computer models for developing emusifiable formulations; rapid tests for adjuvant efficacy with specific herbicides; and the blends of dispersing agents and surfactants for suspension stability are specific topics addressed. In addition to formulations influencing pesticide performance, adjuvants of various types are often added to the spray tank to enhance pesticide efficacy. Topics relating to adjuvant enhanced efficacy were adjuvant physicochemical properties; surfactant phytotoxicity to plants and cell suspensions; spray droplet retention and spread relative to efficacy with herbicides; potential of corn syrup as an adjuvant; and methods of evaluating adjuvant efficacy.

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