Pesticide application equipment for use in agriculture

Volume 1
Manually carried equipment

G.A. Matthews
E.W. Thornhill

United Book Prints

Pesticide application equipment for use in agriculture

Vol. 1
Manually carried equipment

by
G.A. Mathews
E.W. Thornhill

United Book Prints

Reprinted in India by:

UNITED BOOK PRINTS
(Imprint of Scientific Publishers, INDIA)
4806/24, Ansari Road, Daryaganj,
New Delhi 110 002, INDIA
E-mail: info@scientificpub.com
Website : http://www.scientificpub.com

Print : 2019

ISBN: 978-93-83692-76-7 (Hardbound)
ISBN: 978-93-88172-31-8 (E-book)

Printed in India

FOREWORD

Pesticides are an important input worldwide for crop production. The effectiveness of pesticide use, however, is greatly influenced by inadequate or poor application techniques, which can also lead to serious environmental and health problems, both animal and human.

Studies carried out by PAO have shown a big discrepancy between the available "state of the art" technology which is now commercially available, and the plant protection equipment and application practices often found at field level. This harmful and sometimes tragic discrepancy originates mostly from a vel:y limited knowledge on the subject of pesticide application within the farming, governmental and commercial sectors and is especially serious in formerly centrally planned economies of eastern and central europe and developing countries.

As a result of these studies, PAO clecicleel to update its technical literature. This Agricultural Services Bulletin on manually•carriecl pesticide application equipment is the first of two new volumes replacing Bulletin 38, first published in 1979, which has become very outdated.

The Bulletin has been compiled to improve the technical knowledge on pesticide application equipment and its use and incorporates the latest advances in technology. It is for use by agricultural engineers, technicians, and training establishments as well as casual readers wishing to broaden their knowledge of the subject.

The present first Volume will b_e complemented by a second one on mechanically powered pesticide application equipment for use in agriculture.

The bulletin was prepared under contract for PAO by G.A. Matthews and E.W. Thornhill at the International Pesticide Application Research Centre of Imperial College, Silwood Park, Great Britain. Contributions and comments have been provided by many colleagues both from inside and outside FAO. Among those to whom special thanks are owed are: K. Eveleens (University of Wageningen/The Netherlands), D. Giga (University of Zimbabwe), P.-W. Kopisch-Obuch (PAO/Rome), W. Uicke (University of Gcittingen/Germany) and L. Lumkes (The Netherlands).

Aclrianus G. Rijk, Chief
PAO Agricultural Engineering Service.

Contents

Abstract

This Bulletin describes the main types of manually-operated or manually-carried pesticide application equipment. Most of the small-scale farmers in the developing countries, who have used pesticides, rely on a lever operated knapsack sprayer. These sprayers are now manufactured in many of the developing countries, who are introducing modern designs. The details of the design and the types of nozzle needed to treat crops and improve safety to the user are described. Changes in manufacturing techniques are resulting in certain plastics being used instead of brass.

The less expensive compression sprayers are also described as these may become more important on the smallest farms. Details of the range of nozzles that can be used with hydraulic sprayers are given so the user can make a better selection of nozzle to apply pesticides more efficiently. Equipment used to apply reduced volumes such as the spinning disc applicators is important, especially in areas where water supplies are difficult to obtain. Fog, granule, dust and other special applicators are also described.

Specifications for the main types of applicator are given to assist those who have to purchase the equipment. The remaining sections provide guidance on safe application of pesticides and maintenance of the equipment.

A glossary of terms is included.

Key words

Pesticide, Application Equipment, Specifications, Knapsack Sprayers, Compression Sprayers, Spinning Discs Applicators, Motorised Mistblowers, Safety.

Whenever using a pesticide

ALWAYS READ THE LABEL

of the Product to ensure that

all the recommendations

of the Manufacturer are carried out.